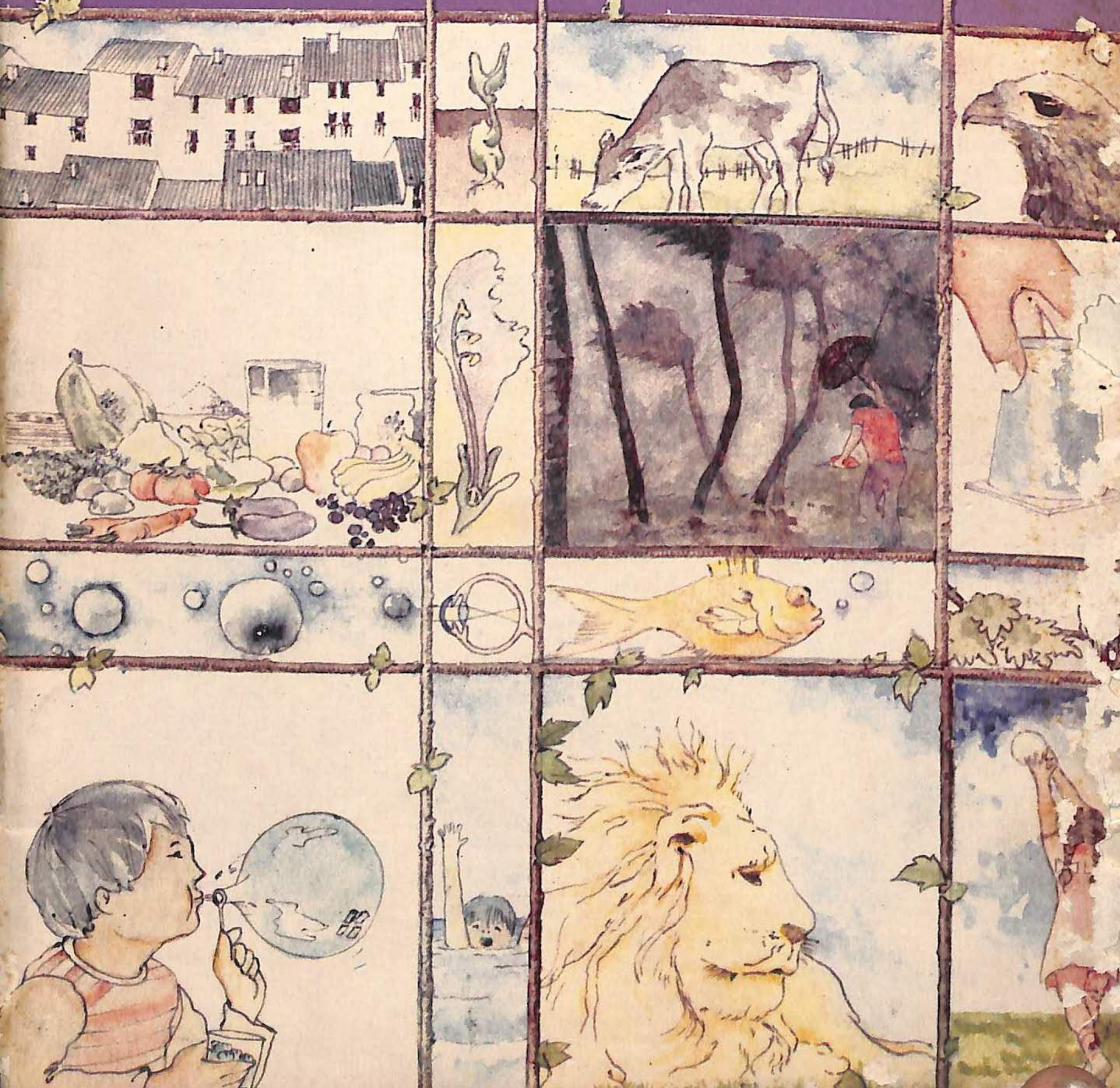
DISCOVERING SCIENCE 1



DISCOVERING SCIENCE

BOOK 1

GOMATHI KRISHNAMACHARI

Vidya Mandir Higher Secondary School
Madras

I.B. KAKAR

Principal, Army Public School
Delhi

Illustrations: S. MURALIDHARAN

Sangam Books

NOTE TO THE TEACHER

In the course of writing these books, some decisions have been taken with the recognition that this is a course for the primary level. The terminology and vocabulary must therefore be exact without emotionally distancing the young learner.

With this in mind, some of the vocabulary is 'phased out', e.g. Book 1 uses the term *he-frog* and *she-frog,* and Book 3 introduces the words *male* and *female.*

The teacher's attention is also drawn to the fact that for some plants, fruits and vegetables, the *most* familiar names have been used since there are regional variations. It seemed appropriate, for instance to say *lady's fingers* and *brinjal* instead of *okra* or *aubergine.* Wherever necessary, the teacher is advised to substitute words that are better understood for such words. However, it is also recommended that 'internationally' understood words are introduced at the appropriate level so that they pass into the learner's passive vocabulary.

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PREFACE

Discovering Science offers a new and challenging set of texts which has grown out of modern approaches to learning and teaching science. The five books in the primary series are based chiefly on the syllabus and recommendations of the National Council of Educational Research and Training (NCERT). The books also take into account the syllabuses of other primary-school systems.

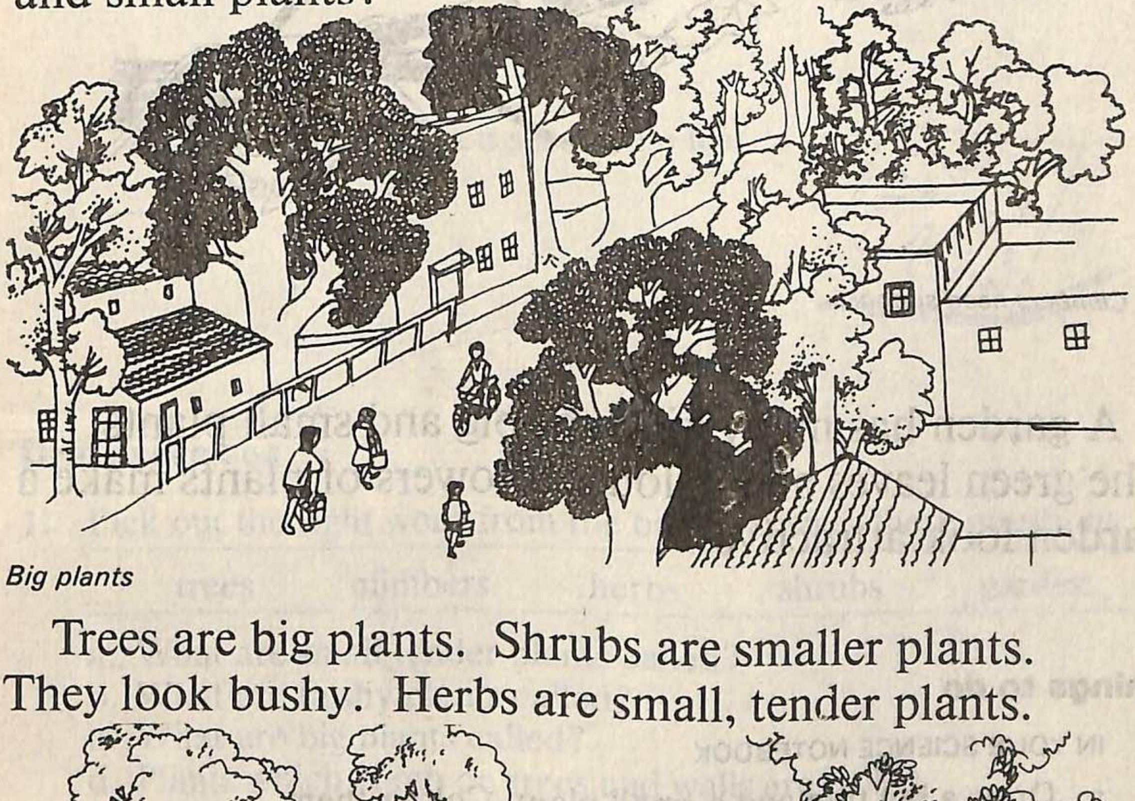
The series presents science as the logical, exact discipline it is. The concepts of interdependence and of cause-effect in natural phenomena are clearly established. In the text, as in the exercises, science emerges as knowledge bound up closely with everyday life. A sense of ecology is also developed in a simple manner.

The texts are profusely illustrated, and are planned with a view to stimulating the child's interest and curiosity. The exercises should serve not only to recapitulate what has been learnt, but to create lines for thinking, interpretation, deduction, classification — all of these appropriate to the age-level. Due account has been taken of the possibilities and limitations of the classroom.

The authors and publishers are grateful to the many teachers consulted in the preparation of the books. They are likewise grateful to the artists who have designed and illustrated the books.

1. Big Plants and Small Plants

Look around your home. Look on either side of the road when you go to school. Do you see big plants and small plants?



Big plants

Trees are big plants. Shrubs are smaller plants. They look bushy. Herbs are small, tender plants.

Shrubs and herbs

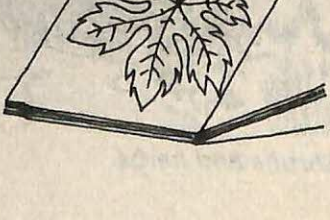
Some plants need support. They climb on trees and walls. They are climbers.

Climbers need support.

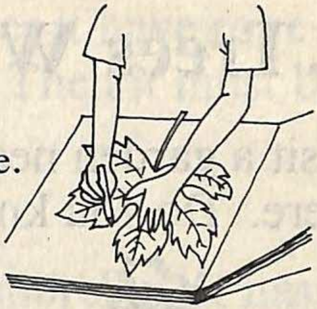
A garden has many kinds of big and small plants. The green leaves and coloured flowers of plants make a garden look attractive.

Things to do

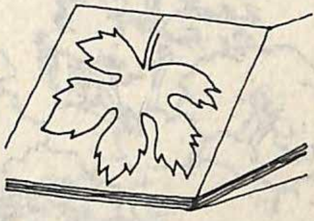
1. IN YOUR SCIENCE NOTEBOOK
   a. Draw a big tree and a small plant. Colour them.
   b. Trace the margin of a big leaf. Follow this method. Pluck a big leaf.
      i. Place it on a page of your notebook.



ii. Hold it down firmly with one hand.
iii. Run your pencil carefully along its margin. Then take the leaf off the page.



iv. Draw the lines you see on the leaf. Colour it.



Oral exercises

1. Pick out the right word from the box to answer these questions:

trees	climbers	herbs	shrubs	garden

a. What are small tender plants called?
b. What are bushy plants called?
c. What are big plants called?
d. Plants which climb on trees and walls are called . . . .
e. What is the name of a place where we see many kinds of plants?

NOTE TO TEACHER:

The words in the box should be written on the blackboard and the questions read out.

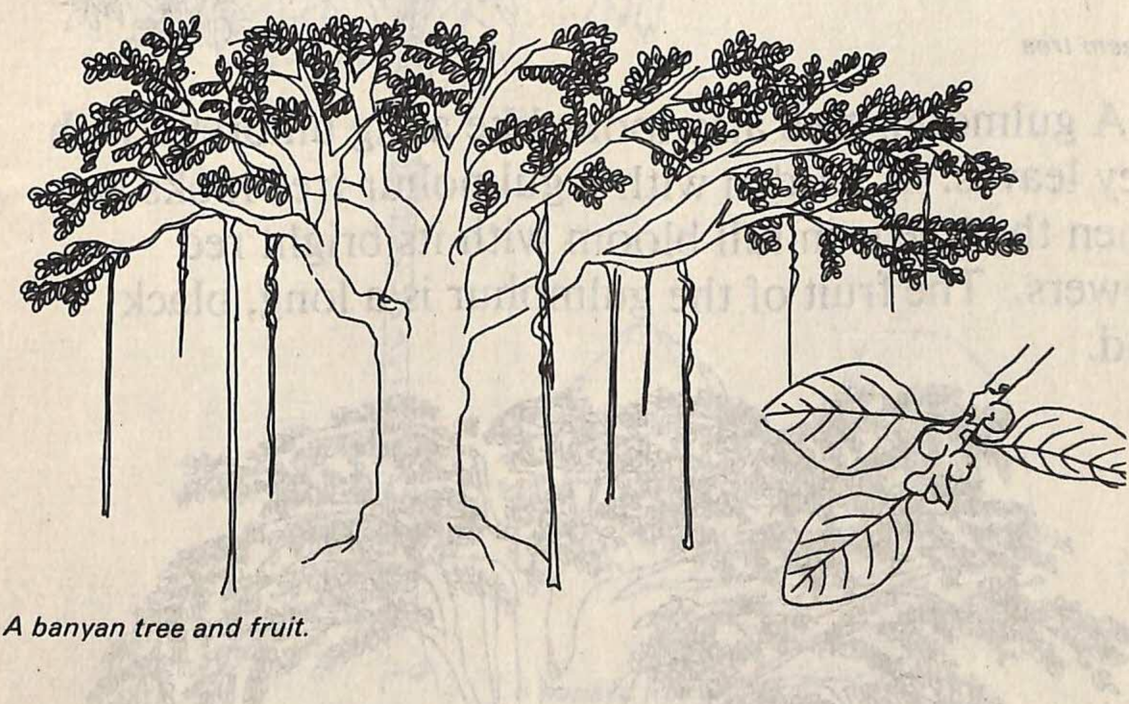
2. Trees We Know

Visit a garden near your house. Look at the trees there. Do you know the names of many of them?

A garden with trees.

Look at the biggest of them all. Does it have rope-like roots hanging from its branches? Then it must be a banyan tree.

The banyan tree looks like a huge umbrella. It has bright green leaves and small red fruit. Children like to swing from the hanging roots. Birds and squirrels eat the fruits of this tree.



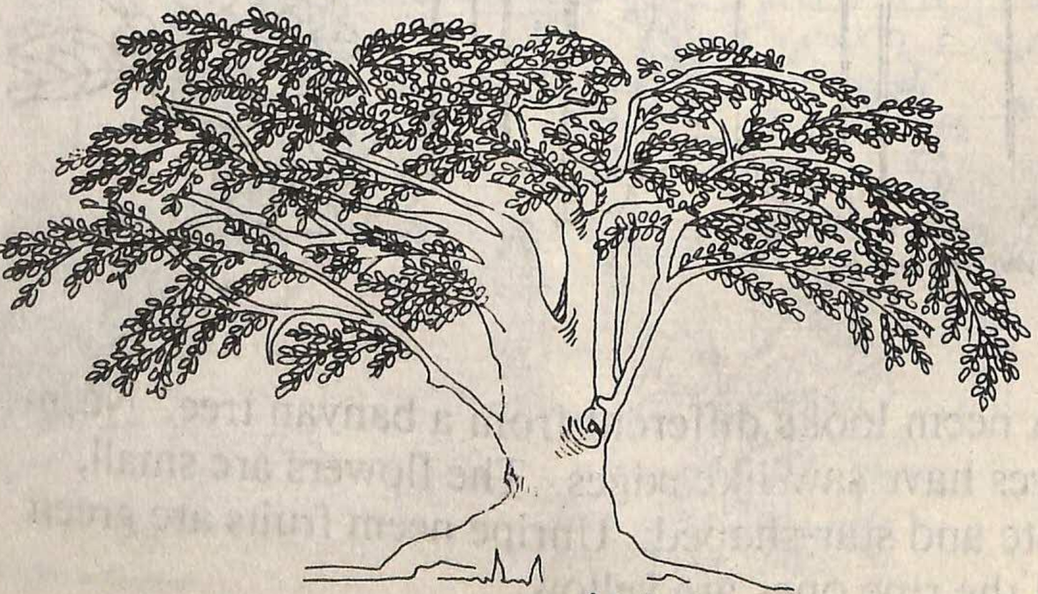
A banyan tree and fruit.

A neem looks different from a banyan tree. Neem leaves have saw-like edges. The flowers are small, white and star-shaped. Unripe neem fruits are green and the ripe ones are yellow.

Crows and parrots enjoy eating these fruit.

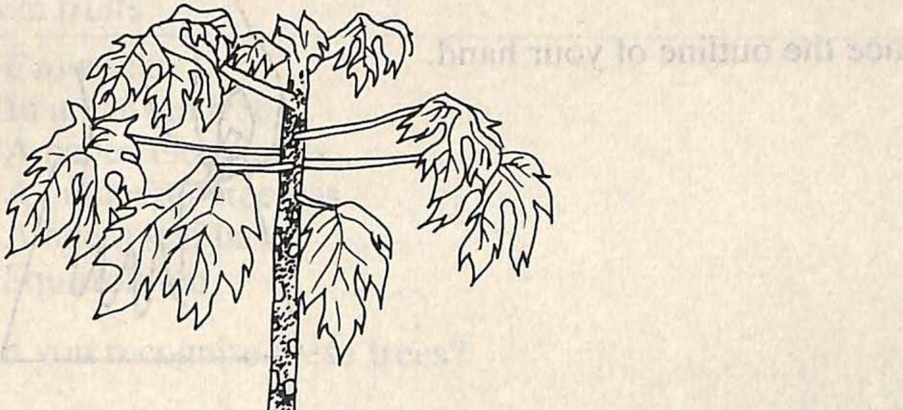
A neem tree

A gulmohur tree also looks like a big umbrella with lacy leaves. A garden with a gulmohur tree looks gay when the tree is in full bloom with its bright red flowers. The fruit of the gulmohur is a long, black pod.



A gulmohar tree.

A papaya tree does not have branches. It has huge leaves and huge fleshy fruit. A single leaf looks like a giant hand! Its flowers are white. The unripe fruit is green and turns yellow when ripe. The fruit is juicy and tasty.



A papaya tree and fruit

Things to do

1. FOR CLASSROOM DISPLAY

Bring a leaf from each of the trees you have read about. They can be displayed on the display board in your class.

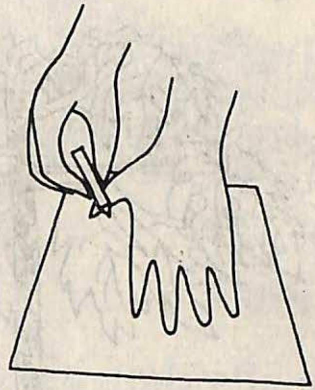
2. IN YOUR SCIENCE NOTEBOOK

a. Draw a banyan leaf and a neem leaf by tracing the margins. Colour them.

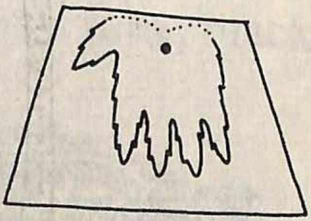
b. Do you want to draw a papaya leaf too? Then follow this method:

Place your hand on a page of your notebook. Spread out your fingers.

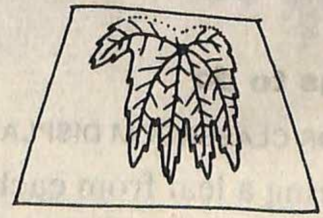
i. Trace the outline of your hand.



ii. Make the edges a little uneven, like the teeth of a saw. Then put a dot in the centre.



iii. Draw the veins from the dot as you see in the figure. Colour your leaf.



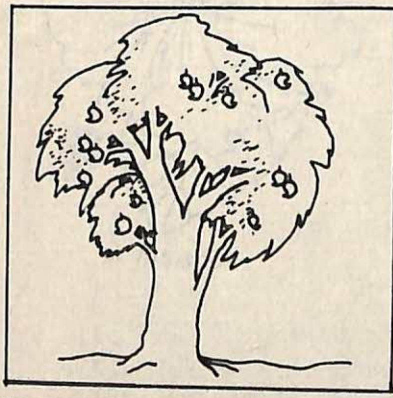
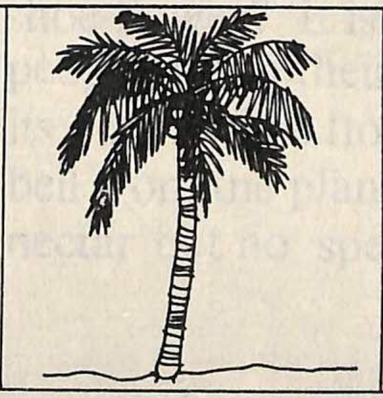
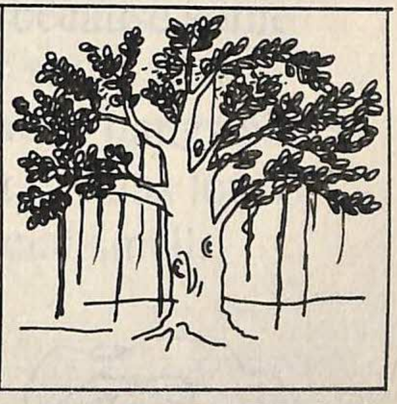
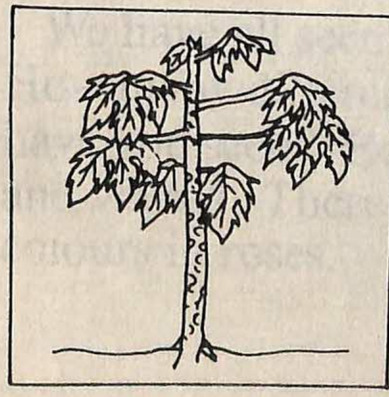
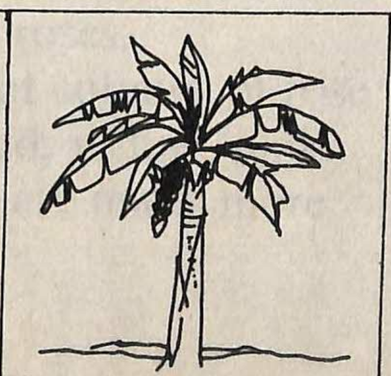
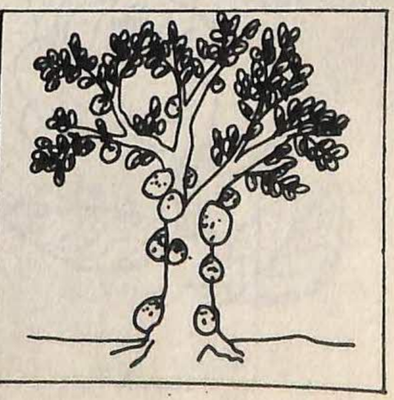
Oral exercises

1. Pick the right answers from the box to complete each sentence.

roots hang from the branches
saw-like margin
like a giant hand
lacy leaves and red flowers
banyan fruits
neem fruits

a. Crows eat ....
b. In a banyan tree ....
c. A papaya leaf looks ....
d. A gulmohur tree has ....
e. A neem leaf has ....
f. Squirrels eat ....

2. Can you recognise these trees?

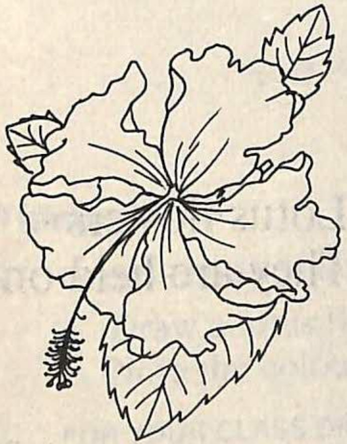
3. Write four sentences about any other tree you know.

NOTE TO THE TEACHER:

The words in the box should be written on the blackboard and the sentences read out.

3. Flowers We Know

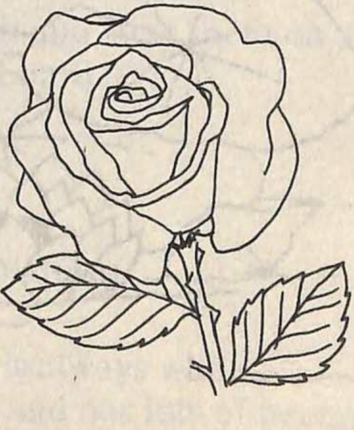
You have seen flowers in gardens and parks. You may have a beautiful garden of your own or perhaps you have a few flower-pots in your verandah. How many different kinds of flowers have you seen so far? Here are pictures of some flowers that are common in our gardens and houses.



A hibiscus

The hibiscus, or shoe-flower, is a big red flower. Sometimes it is a pale pink or a bright scarlet. Do you know why it is called a shoe-flower? It is because some people polish their shoes with its petals! The flower hangs like a bell from the plant. It has lots of nectar but no special smell.

We have all seen roses. How many different colours of rose have you seen? Red, yellow, pink and white? There are many more colours in roses.

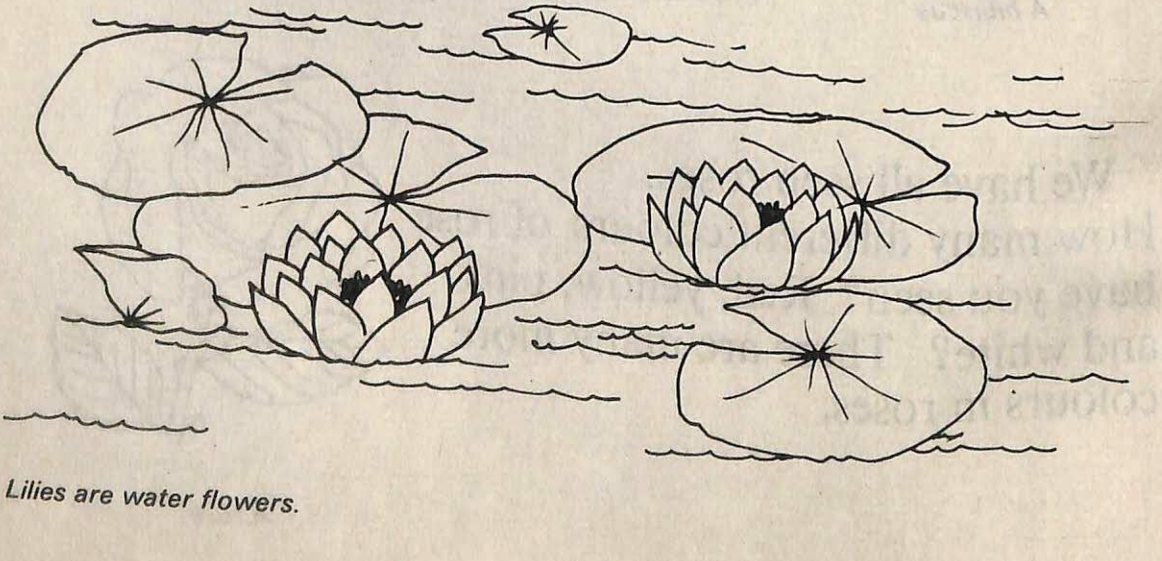


A rose

Roses and jasmines have a special smell of their own. They have plenty of nectar too. Roses have many rows of petals. The jasmine sometimes has only one row of petals, sometimes many. Jasmines are always white.

Jasmines have a special smell

Lotuses and lilies are water plants. Lotus flowers have broader petals than water lilies. They are held on the water by a long stalk.



Lilies are water flowers.

Flowers change into fruits. Fruits have seeds in them.

A sunflower with seeds.

Things to do

1. IN YOUR SCIENCE NOTEBOOK
    - a. Draw a lotus flower and colour it.
    - b. Note the colour and smell of any flower you see.
2. FOR YOUR CLASS DISPLAY BOARD
    - a. Bring any flowers you like to class and pin them up on the display board.
    - b. Collect pictures of flowers, cut them out and stick them on a piece of card. Hang this on the display board.

Oral Exercises

1. Join the name of flower with its common feature:

a. The jasmine	is bell-shaped .
b. The lotus	has a special smell and is always white .
c. The hibiscus	comes in many colours and has lots of nectar.
d. The rose	is a water plant with broad petals.

2. Fill in the blanks with the words given in the box.

hibiscus stalk bell

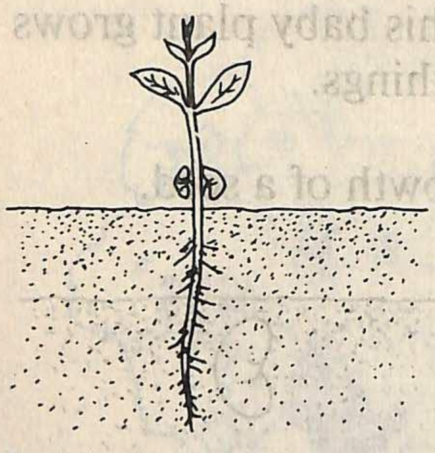
a. The lotus is held on the water by a long ....
b. The other name for .... is shoe-flower.
c. The hibiscus hangs like a .... from the plant.

3. Name three flowers which are white.
4. Name two flowers which grow in ponds.

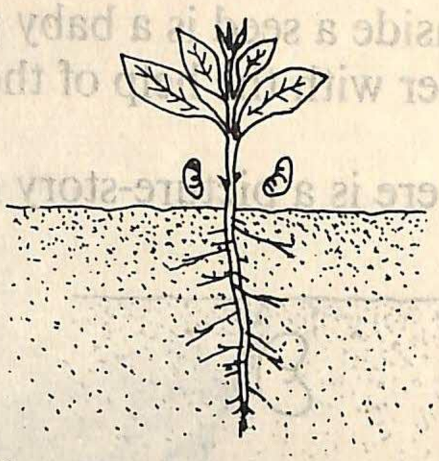
4. The Growth of a Seed

Most plants grow from a seed. The largest trees, like the banyan and neem trees, grow from small seeds.

The neem tree grows from a small seed.



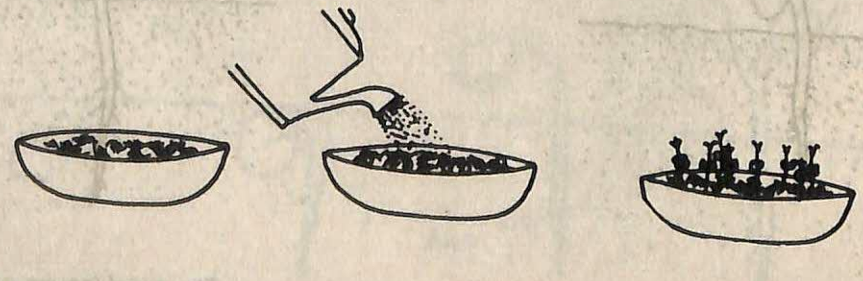
The baby plant uses food stored in the seed leaves.
The root grows into the soil.
The shoot pierces through the soil.
The shoot turns green



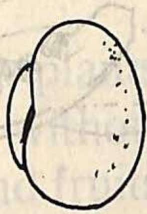
More roots and shoots grow.
The food stored in the seed-leaves finishes.
Seed leaves shrink and fall off.
The plant now gets its food from the soil and grows bigger.

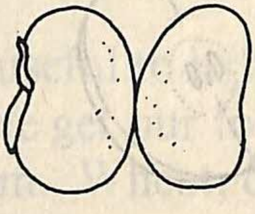
Things to do

1. You can grow plants from a seed. It is very easy if you do this:
   a. Take a small bowl. Spread some cotton-wool on it. Sprinkle some water. Put some seeds on the cotton-wool. Mustard seeds grow fast.
   b. After a few days, you will see the seeds have grown into tiny plants.



2. Open a soaked bean seed. Look at the baby plant in it. This tiny thing has a root and a baby shoot.





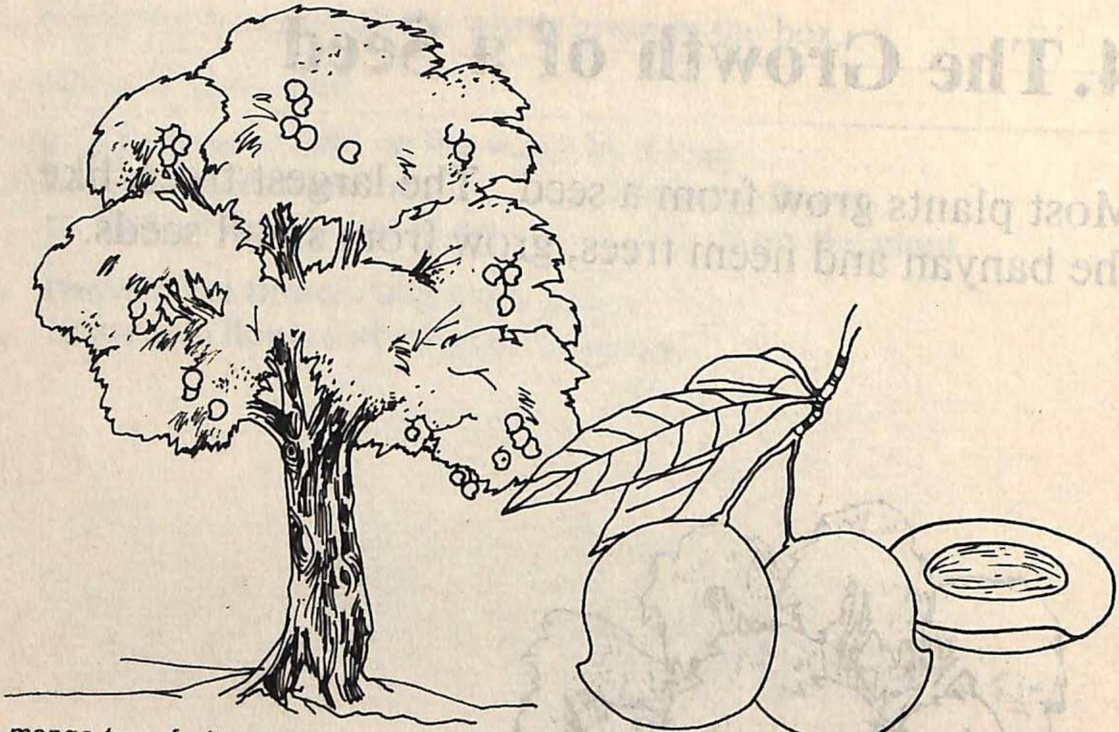
Oral Exercises

1. Tick the correct answer in each of the following:
   a. The baby shoot/root turns green.
   b. The seed swells because of water/food in the soil.
   c. The baby plant takes its food from the soil/seed leaves.
   d. When the food in the seed finishes, the seed leaves shrink and fall/disappear.
   e. The seed gets its warmth from fire/sunlight.

2. Fill in the blanks with words given in the box:

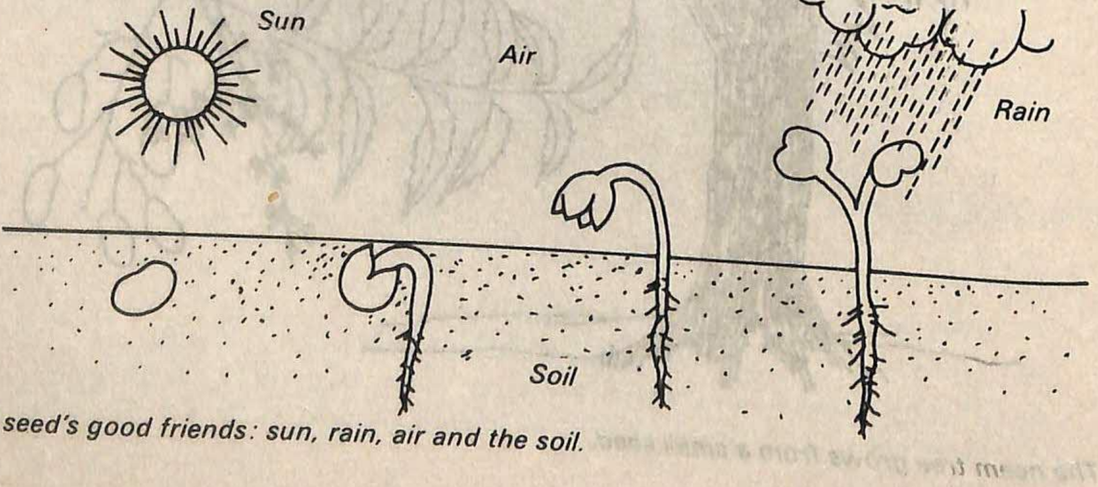
food	baby plant	seeds	soil	fruits

a. All seeds have a .... hidden in them.
b. For the baby plants, seeds have some stored ....
c. Baby plants grow into big plants by taking their food from the ....
d. Flowers grow into ....
e. Fruits cover the ....



A mango tree, fruit and seed

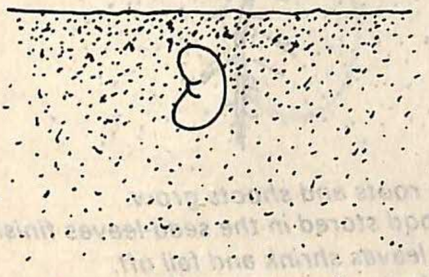
A seed needs four good friends to help it grow into a healthy plant — the sun, the rain, the air and the soil. The sun gives it warmth, the rain gives it water and the air gives it life. The soil is a storehouse of food for plants.



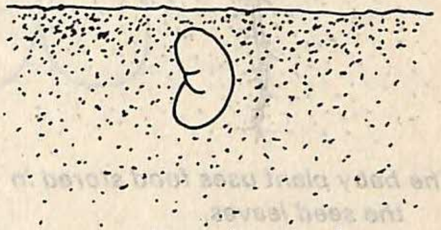
A seed's good friends: sun, rain, air and the soil.

Inside a seed is a baby plant. This baby plant grows bigger with the help of these four things.

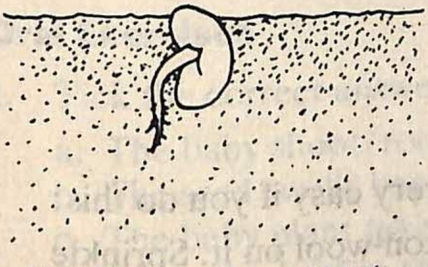
Here is a picture-story of the growth of a seed.



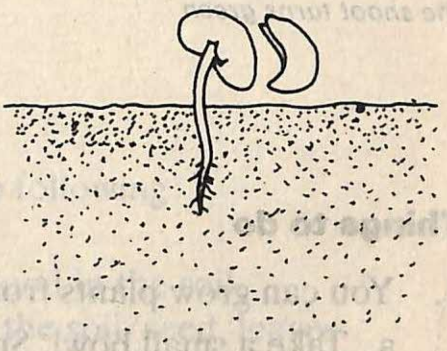
A bean seed in moist soil.



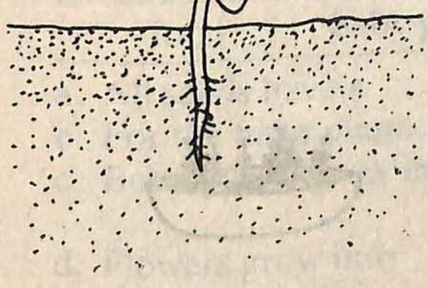
Seed swells.



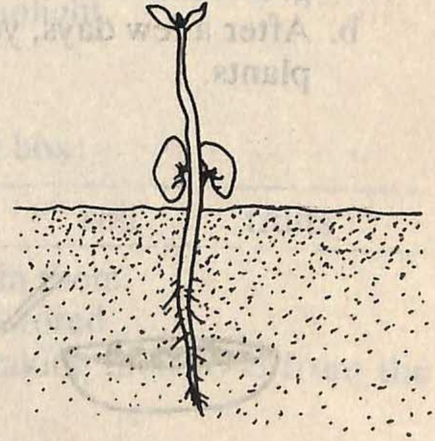
White baby root comes out.



The seed coat falls.

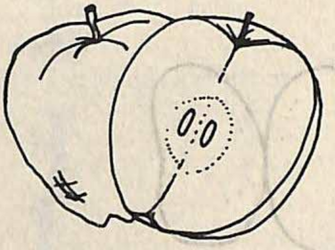


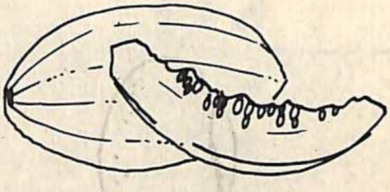
The baby shoot appears.

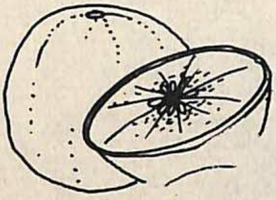


The seed leaves open.

3. Name these fruits which have seeds hidden in them.

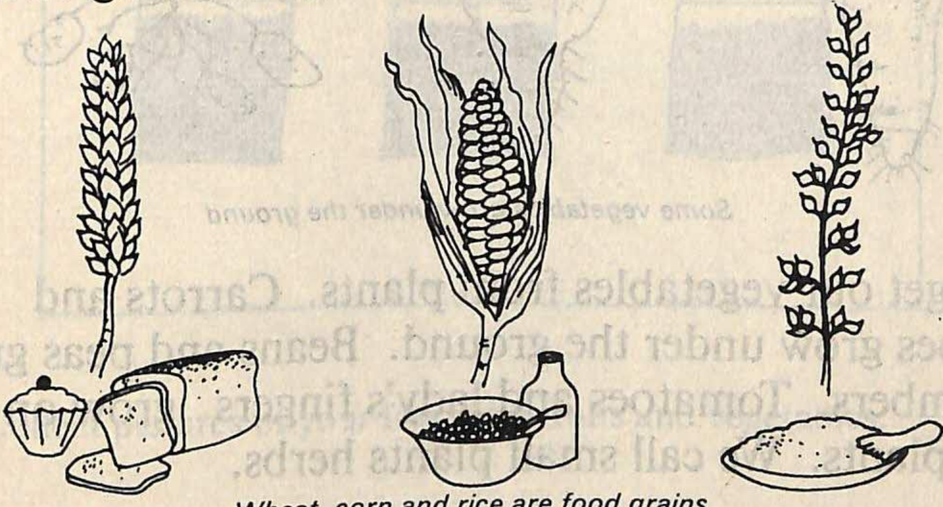






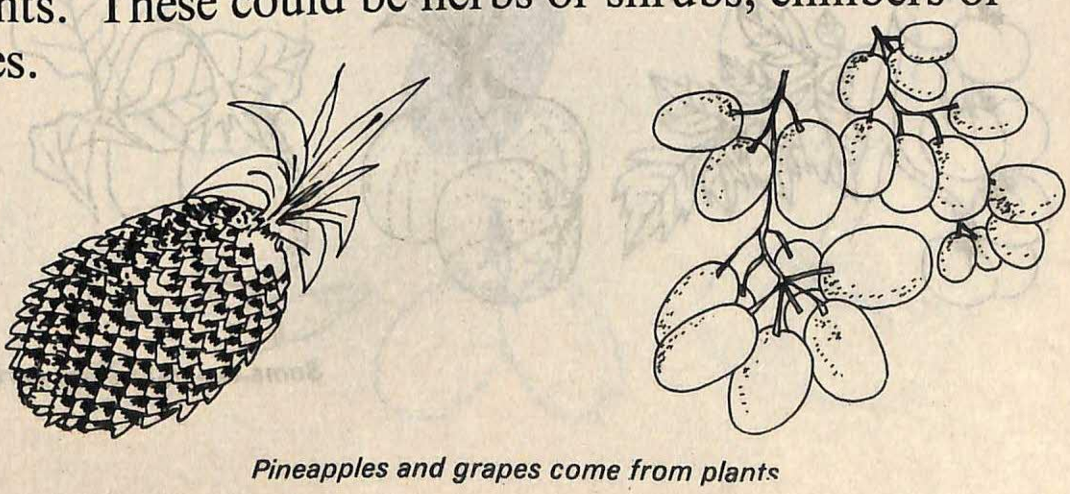
5. The Usefulness of Plants to Man

Do you know plants are very useful to us? It is difficult for us to live without them. We get our food, vegetables and fruits from them. Wheat, corn and rice are food-grains we get from plants.



Wheat, corn and rice are food grains

Every fruit or vegetable we know or use comes from plants. These could be herbs or shrubs, climbers or trees.



Pineapples and grapes come from plants

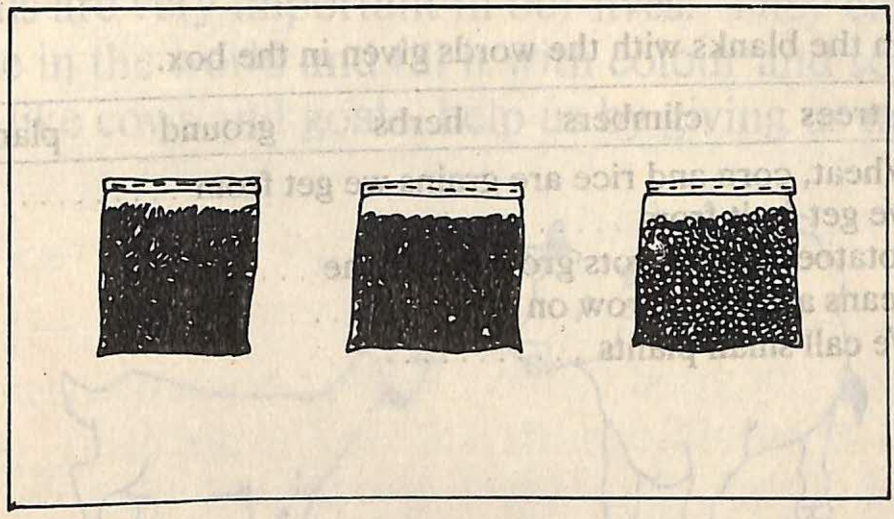
Some vegetables grow under the ground

We get our vegetables from plants. Carrots and potatoes grow under the ground. Beans and peas grow on climbers. Tomatoes and lady's fingers grow on small plants. We call small plants herbs.

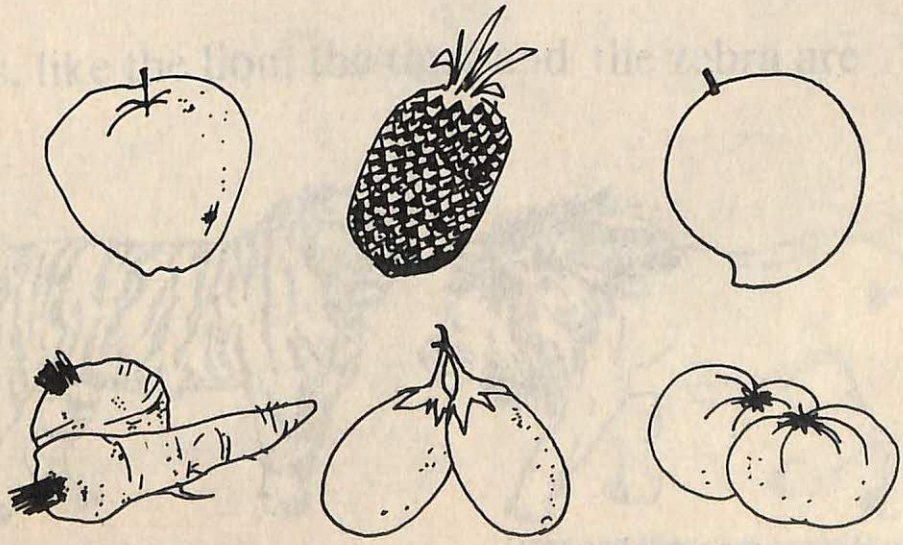
Some vegetables are herbs

Things to do

1. Take some grains of wheat, rice and corn. Put them into small plastic bags. Stitch them neatly and stick them on to a piece of card. Hang this on your class display board.



2. Collect pictures of your favourite fruits and vegetables.



Oral Exercises

1. Tick the correct answer in each of the following:
   a. We get our food, vegetables and fruit from plants/boxes.
   b. Carrots and potatoes grow under the ground/on climbers.
   c. We call small plants herbs/shrubs.

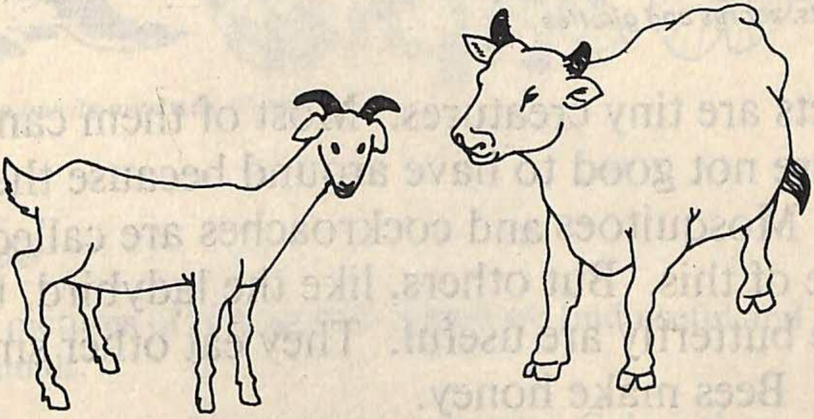
2. Fill in the blanks with the words given in the box.

   trees climbers herbs ground plants

   a. Wheat, corn and rice are grains we get from ....
   b. We get fruit from ....
   c. Potatoes and carrots grow under the ....
   d. Beans and peas grow on ....
   e. We call small plants ....

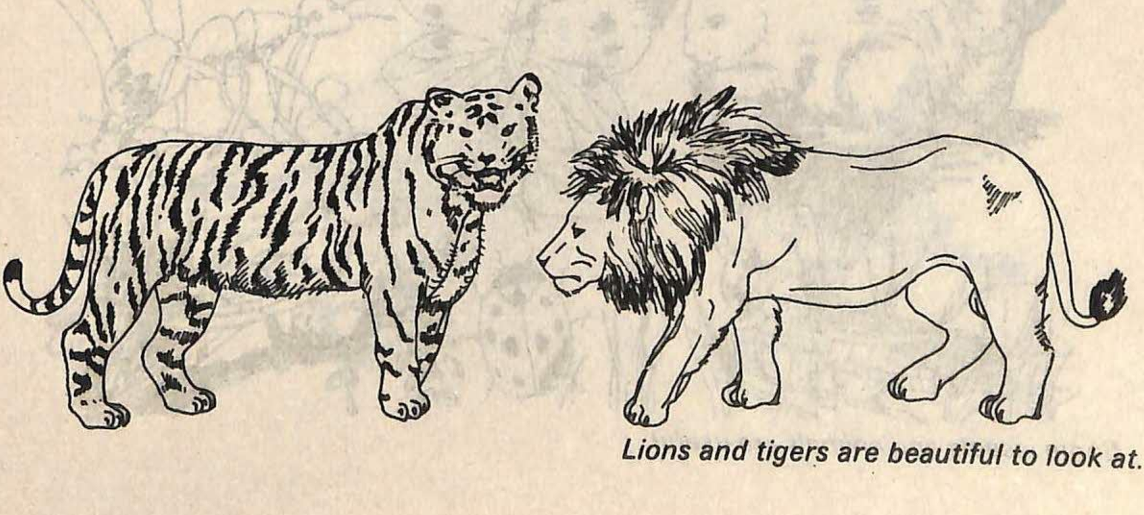
6. Animals in Our World

Animals are very important in our lives. They create a balance in the world and fill it with colour and sound. Some, like cows and goats, help us by giving us milk.



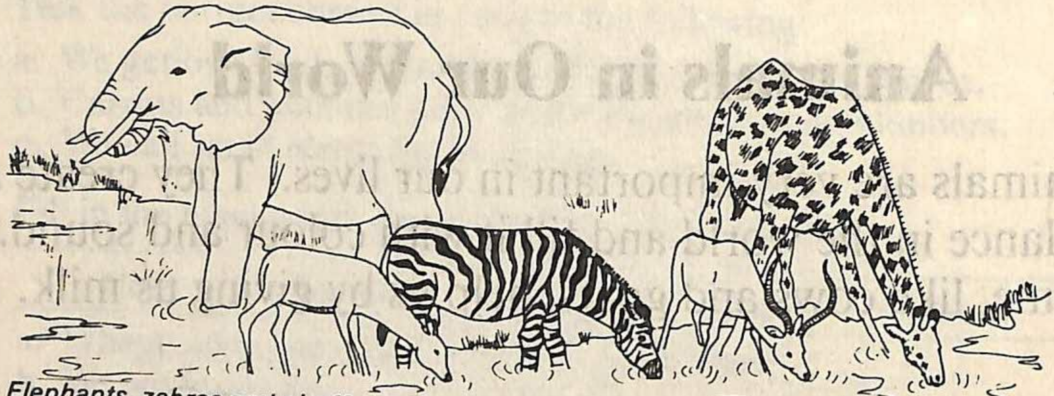
Cows and goats give us milk

Others, like the lion, the tiger and the zebra are



Lions and tigers are beautiful to look at.

beautiful to look at.



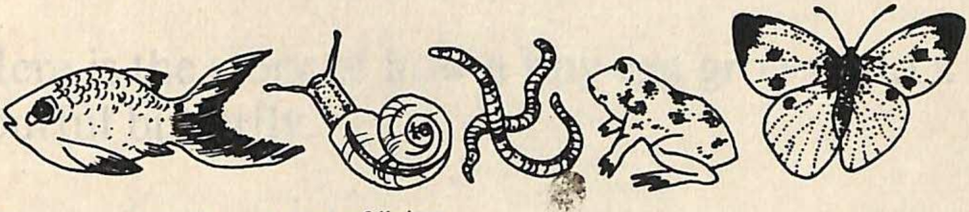
Elephants, zebras and giraffes

Insects are tiny creatures. Most of them can fly. Some are not good to have around because they spread illness. Mosquitoes and cockroaches are called pests because of this. But others, like the ladybird, the bee and the butterfly are useful. They eat other smaller insects. Bees make honey.

Some insects and animals are useful

Apart from insects and large animals, there are smaller animals such as frogs, snakes, squirrels. Then we have birds.

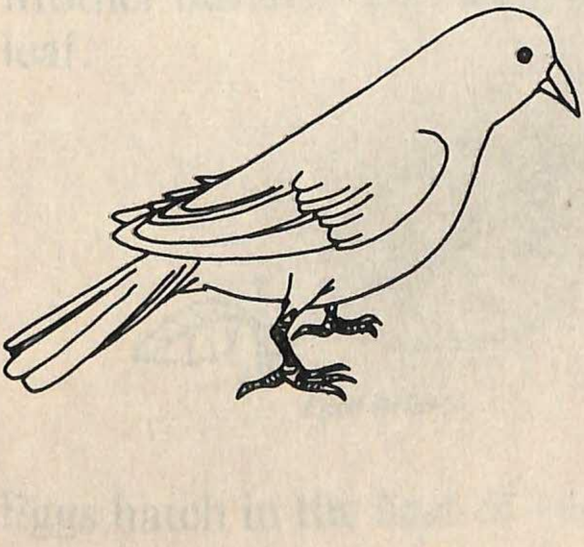
Each of these creatures has its own way of living. Each has its own home. But together with man, they all make up the world around us.



Each creature has its own way of living

Things to do

1. Collect pictures of two animals which we find useful and two wild animals.
2. Draw the picture of a crow and a sparrow. Colour them.



Oral Exercise

1. Match the following:

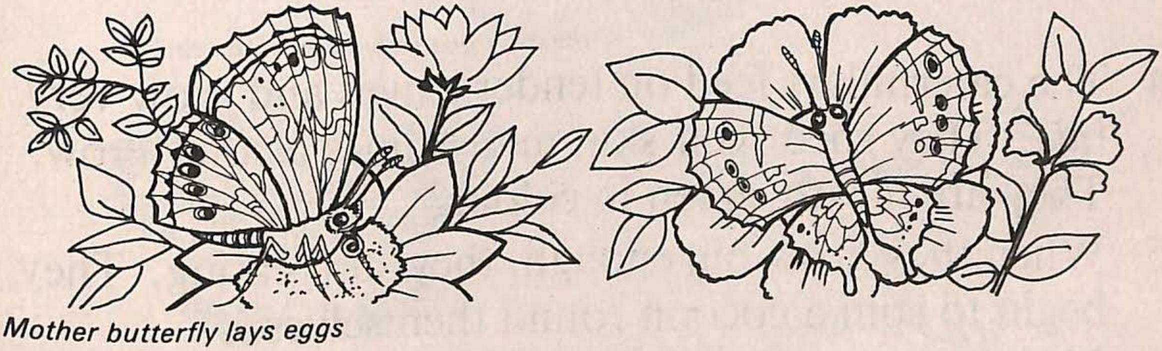
   squirrels
   cows and goats
   lions and tigers
   mosquitos and cockroaches
   bees

   honey
   pests
   milk and meat
   wild animals
   small animals

7. The Story of a Butterfly

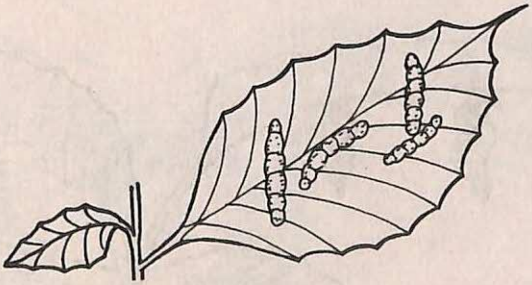
Don't you like it when butterflies visit your garden and add to the colour? They flit from flower to flower and drink the sweet nectar the flowers have.

Here is the story of how a tiny egg grows into a colourful butterfly.



Mother butterfly lays eggs

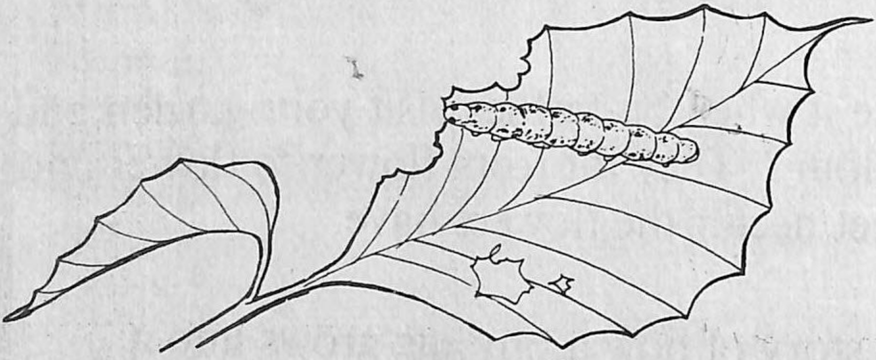
1. Mother butterfly lays her eggs on the underside of a leaf.



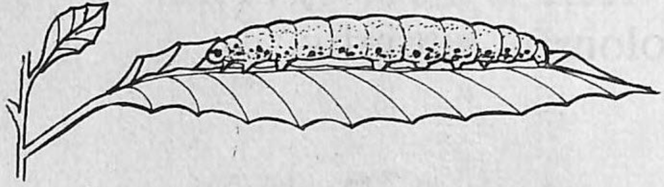
Eggs hatch

2. Eggs hatch in the heat of the sun.

3. Tiny caterpillars wriggle out of the tiny egg cases.

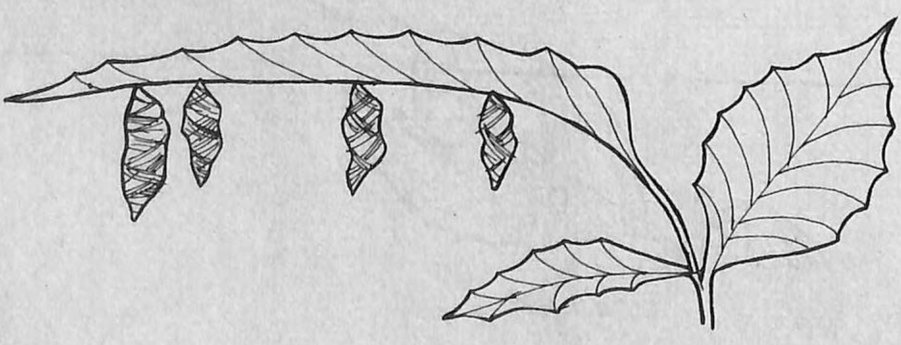


Caterpillars feed on leaves

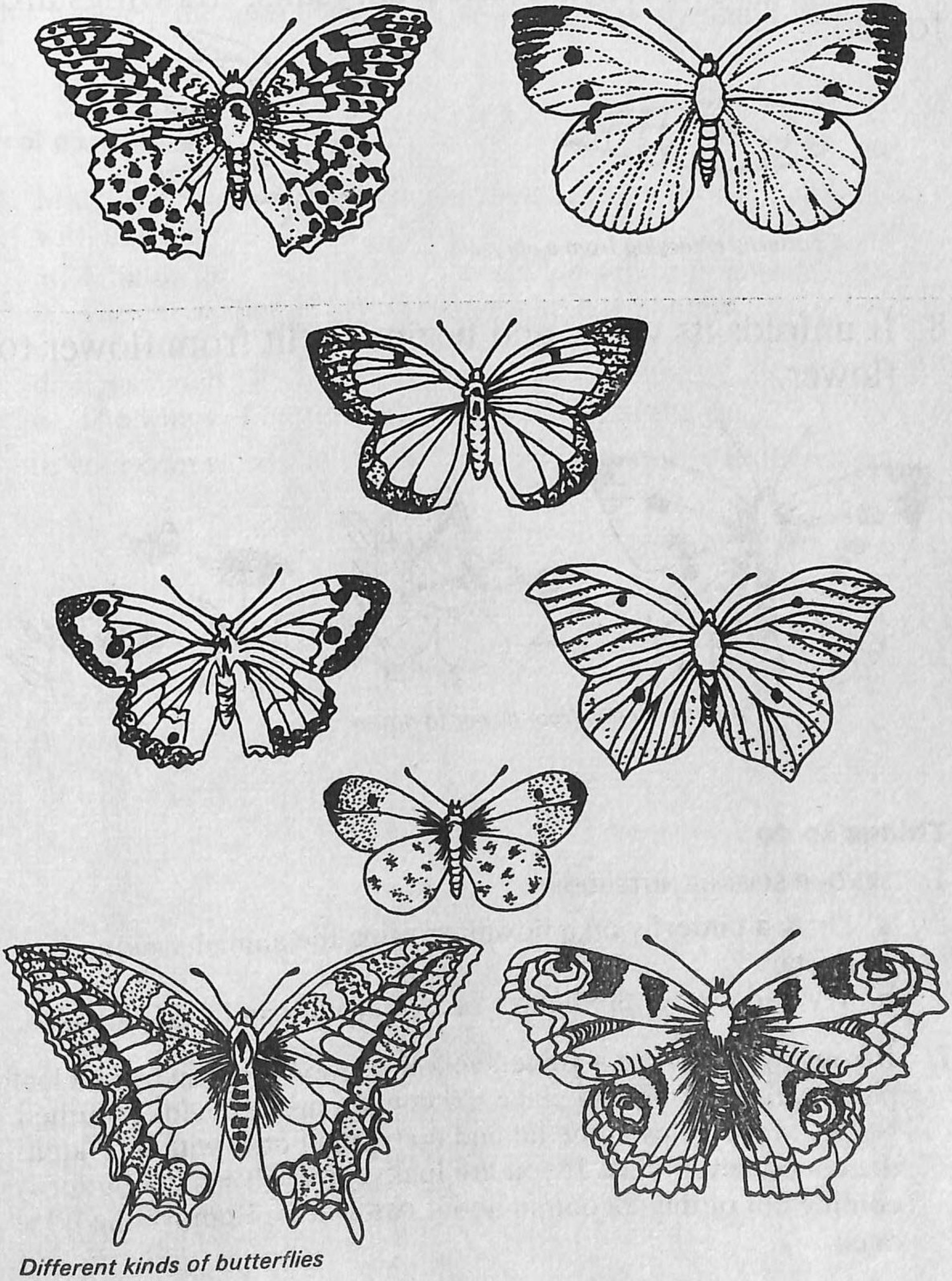


Caterpillar grows big and stops eating

4. The caterpillars feed on tender leaves and grow very fast. They shed their skin many times as they grow. They are mostly green in colour.
5. When they grow big enough, they stop eating. They begin to spin a cocoon round themselves.
6. Many cocoons hang from the underside of a leaf. They are coloured golden-yellow. These cocoons are also called chrysalis.

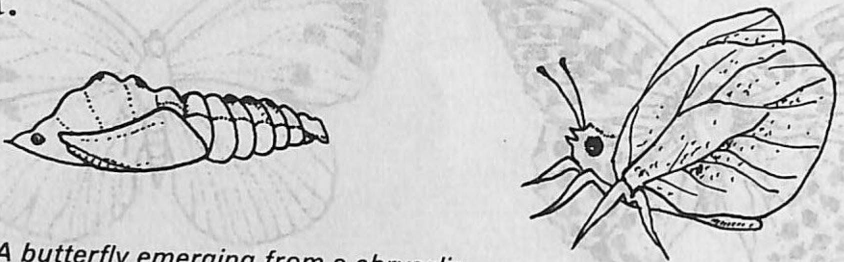


Cocoons hang from leaves



Different kinds of butterflies

7. A butterfly emerges from a chrysalis. Its wings are folded.



A butterfly emerging from a chrysalis

8. It unfolds its wings and begins to flit from flower to flower.

A butterfly flits from flower to flower

Things to do

1. IN YOUR SCIENCE NOTEBOOK
   a. Draw a butterfly on a flower showing the animal sucking nectar.
   b. Try to copy out the figures of a caterpillar and a cocoon also.
2. If you happen to see a golden yellow cocoon hanging from a leaf, pluck the leaf itself and place the cocoon inside a wide-mouthed bottle. Make holes in the lid and cover the bottle with it. Watch the cocoon every day. If you are lucky, you will see the butterfly coming out of the cocoon in about two weeks. Remove the lid at once.

This will help the insect to unfold its wings properly. Let it fly away.

Oral exercises

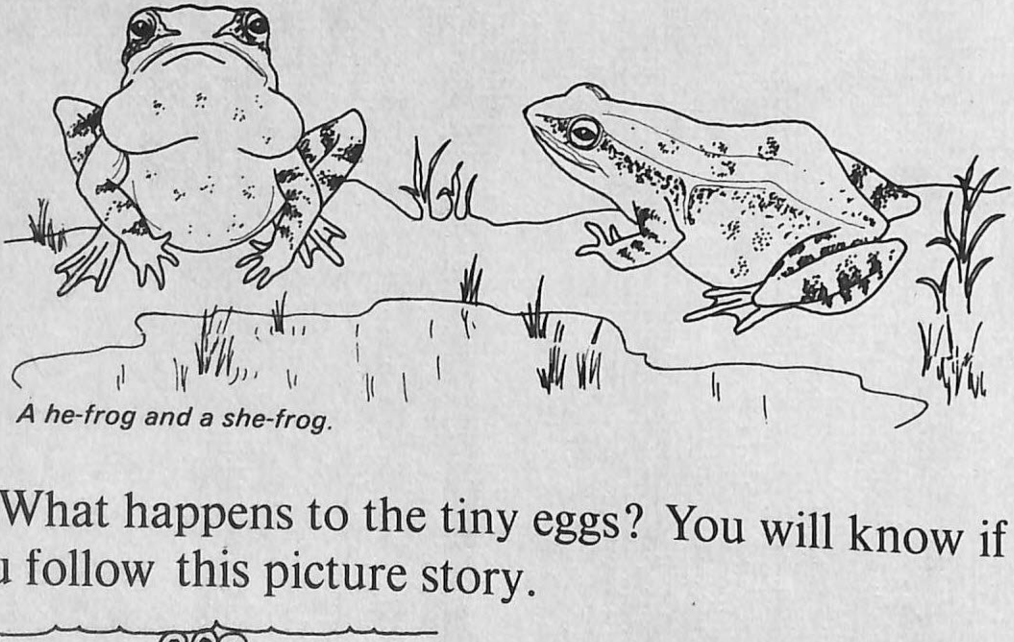
1. Match the given words with the right answers by joining them with lines:

a. A butterfly	is golden-yellow in colour.
b. The caterpillar	are of many colours.
c. A cocoon	sucks nectar from flowers.
d. Eggs hatch	eats tender leaves.
e. The wings of butterflies	in the heat of the sun.

2. In your own words, tell the life-story of a butterfly to the class.

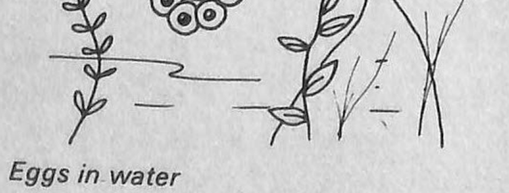
8. The Story of how a Tadpole Becomes a Frog

Have you heard the croaking of frogs soon after heavy rains. They croak very loudly all through the night. Only he-frogs croak. They croak to attract the she-frogs. The she-frogs lay the eggs in the water.



A he-frog and a she-frog.

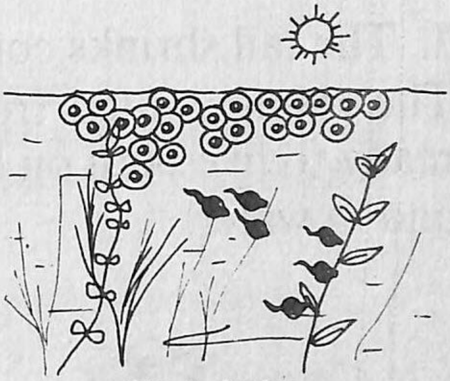
What happens to the tiny eggs? You will know if you follow this picture story.



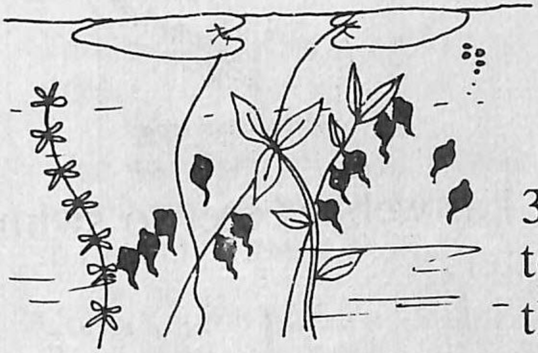
Eggs in water

1. Tiny eggs swell by absorbing water. They now float on water.

2. The heat of sun makes the eggs hatch into tiny tadpoles. Tadpoles are baby frogs.



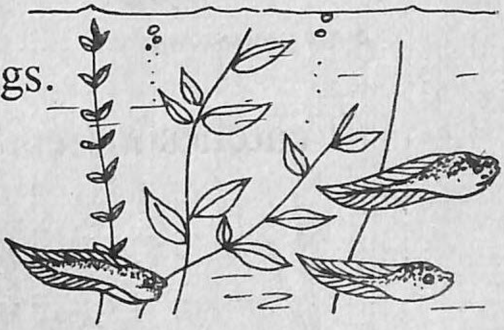
Tiny tadpoles



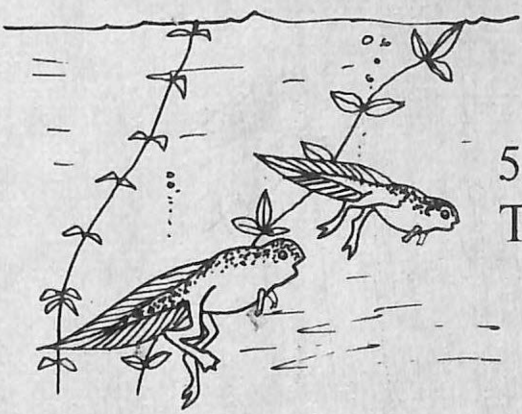
Tadpoles on water plants

3. Tadpoles attach themselves to water plants. They feed on them and grow bigger.

4. Tadpoles hardly look like frogs. They look like fish and swim in water like fish.



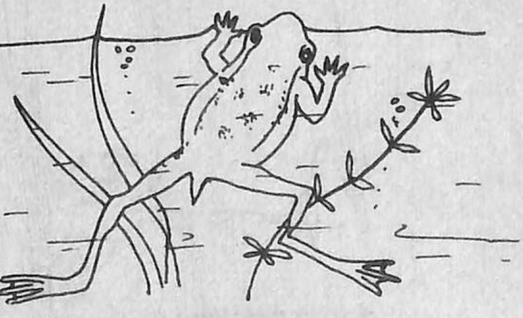
Tadpoles look like fish



Tiny hands and legs

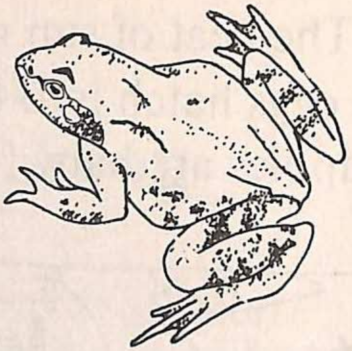
5. Tiny hands and legs appear. The tail begins to shrink.

6. A tiny frog with a short tail begins to hop about on land.

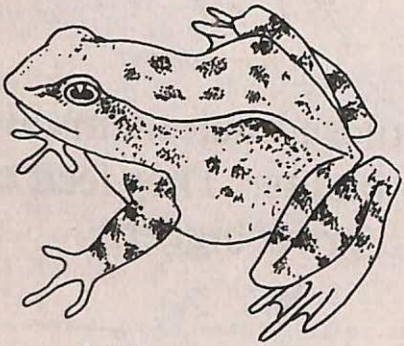


A frog with a short tail

7. The tail shrinks completely. The young tail-less frog is now ready to live both on land and in water.



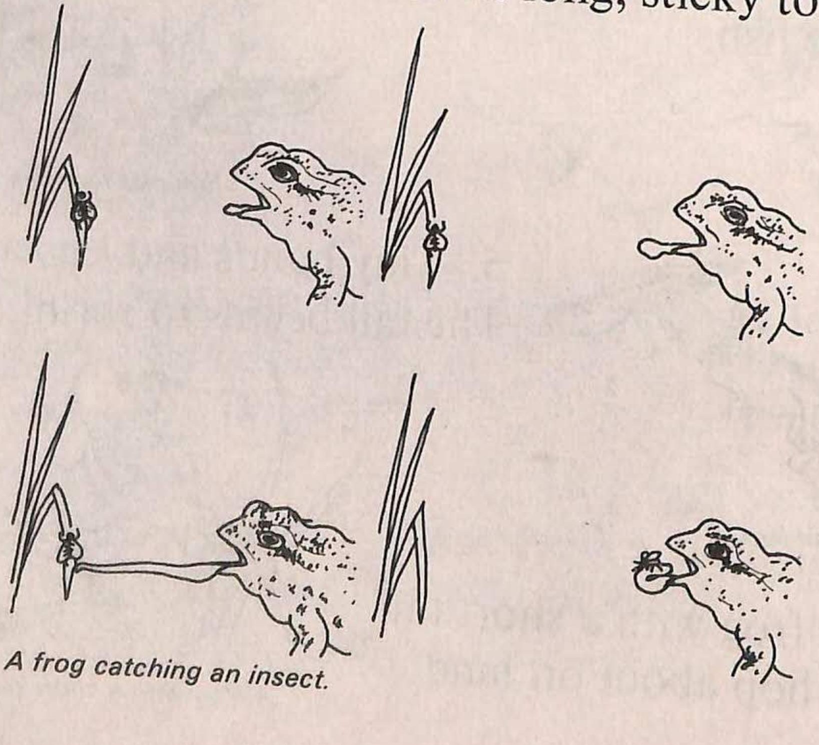
A tail-less frog



A full grown frog

It has webbed feet to swim in water.

It catches insects with its long, sticky tongue.



A frog catching an insect.

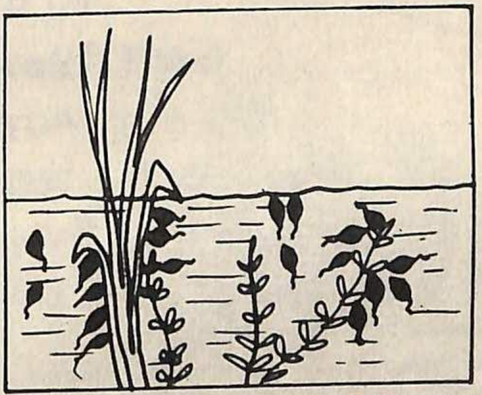
Things to do

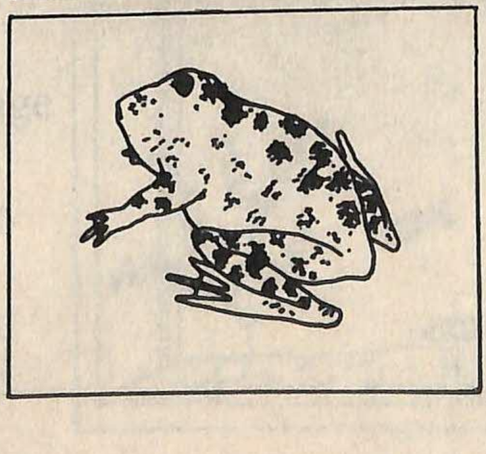
1. Collect some water from a puddle or a pond during the rainy season. You are sure to see some tiny tadpoles in it. Put some green plants from the pond into the bottle where you keep the tadpoles. Watch them eat and grow.

2. Watch how a frog swims in water, using its webbed feet like a duck.

3. Also watch how a frog catches insects using its sticky tongue. See how it swallows its prey by pressing its huge eye-balls downwards in the act of swallowing.

4. Collect some pictures of tadpoles and frogs and put them on your class display board.





Oral Exercises

1. Complete the following sentences by choosing the correct word from the box given below:

croaks   puddle   tadpoles   tongue   fish   swim

a. The he-frog .... in the night in the rainy season.
b. The she-frog lays eggs in the water in the ....
c. .... are baby frogs.
d. Tadpoles look like ....
e. A frog catches insects with its sticky ....
f. A frog has webbed feet to help it ....

2. Tell the story of how a tadpole grows into a frog in your own words.

3. Why do frogs have webbed feet?

9. The Goldfish and Its Ways

Have you seen goldfish? They are called goldfish because their bodies are reddish-yellow, like gold. This is because they have golden-yellow scales on their bodies.

Goldfish

They are easy to keep as pets. You can collect a few goldfish in a jam jar. If you want to watch them grow, you will need a larger tank. You need to have space to keep plants in the tank. You have to feed them every day with fishfood. Change the water often. You have to do this regularly. This is how you keep them alive.

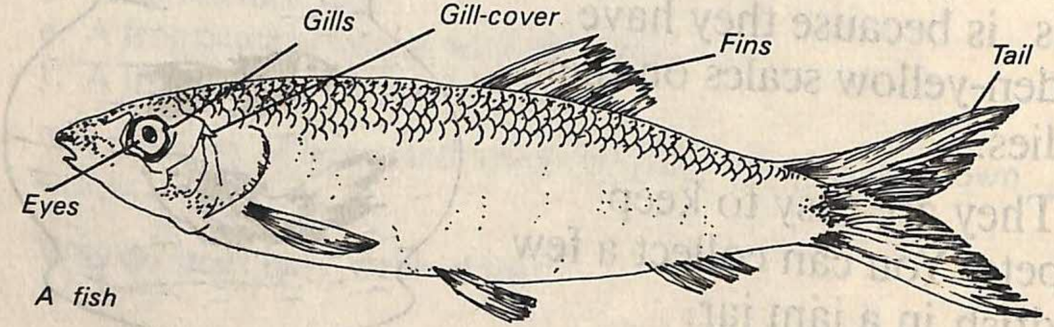
Goldfish in a jam jar

Goldfish in a tank

Watch the way a goldfish swims with its fins. See how its body is shaped like a boat. Watch the fins move when the fish goes up and down and turns.

See how it feeds. What food does it like the best? Tiny worms of course!

Why does it open and close its mouth as it swims?



A fish

What do you see at its sides behind its eyes? We call them gills. You know that air is needed to keep us alive. A fish uses the air in the water to keep itself alive. It takes water through its mouth and bathes the gills with it. The gills are found on either side of its head, behind the eyes. They are protected by a gill cover. The fish uses air already in the water to keep itself alive. After the fish has used up the air in the water, it can let it out through its gill cover.

Things to do

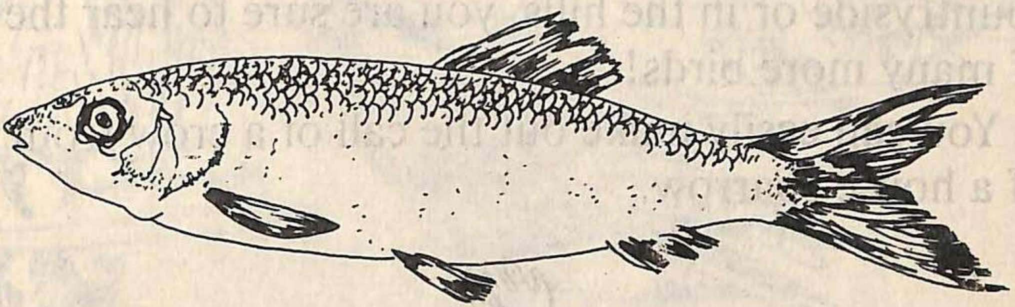
1. IN YOUR SCIENCE NOTEBOOK
Try to draw a goldfish and colour it.

2. FOR YOUR HOME

Try to keep a goldfish as a pet if you can. You can watch it feed, move and grow. It will be a great fun!

3. IN YOUR TEXTBOOK

Name the parts of the fish in this figure:



Oral Exercise

1. Read the words given in the box. Pair them. Here is an example:

scales – golden-yellow

---

scales
gill-cover
eyes
swimming
bright and round

fins
air
golden yellow
behind the eyes
mixes with water

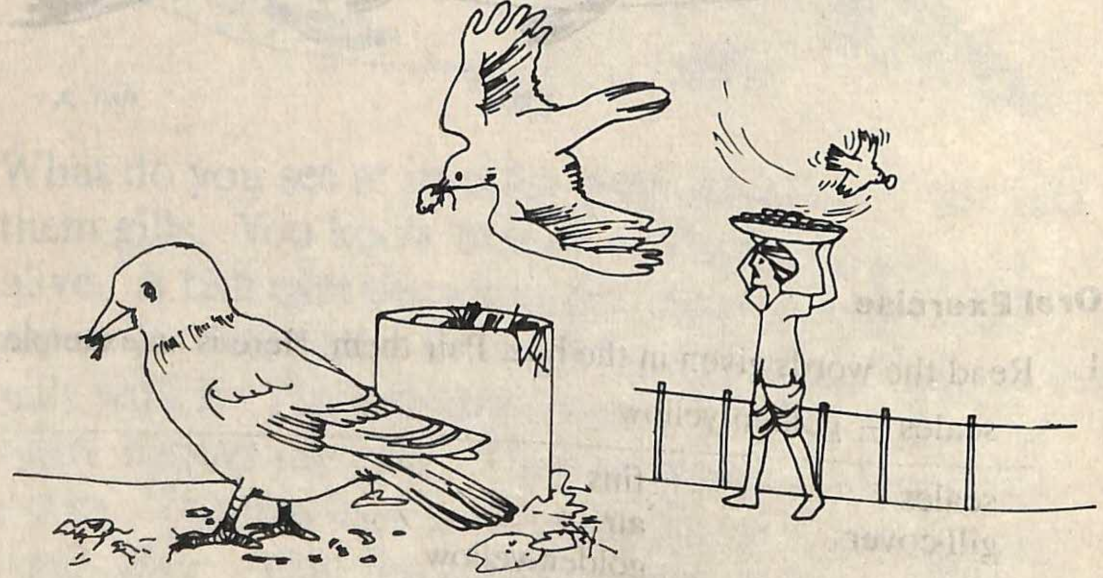
---

a.
b.
c.
d.

10. Birds and Their Ways

If you get up early in the morning, you can hear the twittering call of birds. If you happen to live in the countryside or in the hills, you are sure to hear the calls of many more birds!

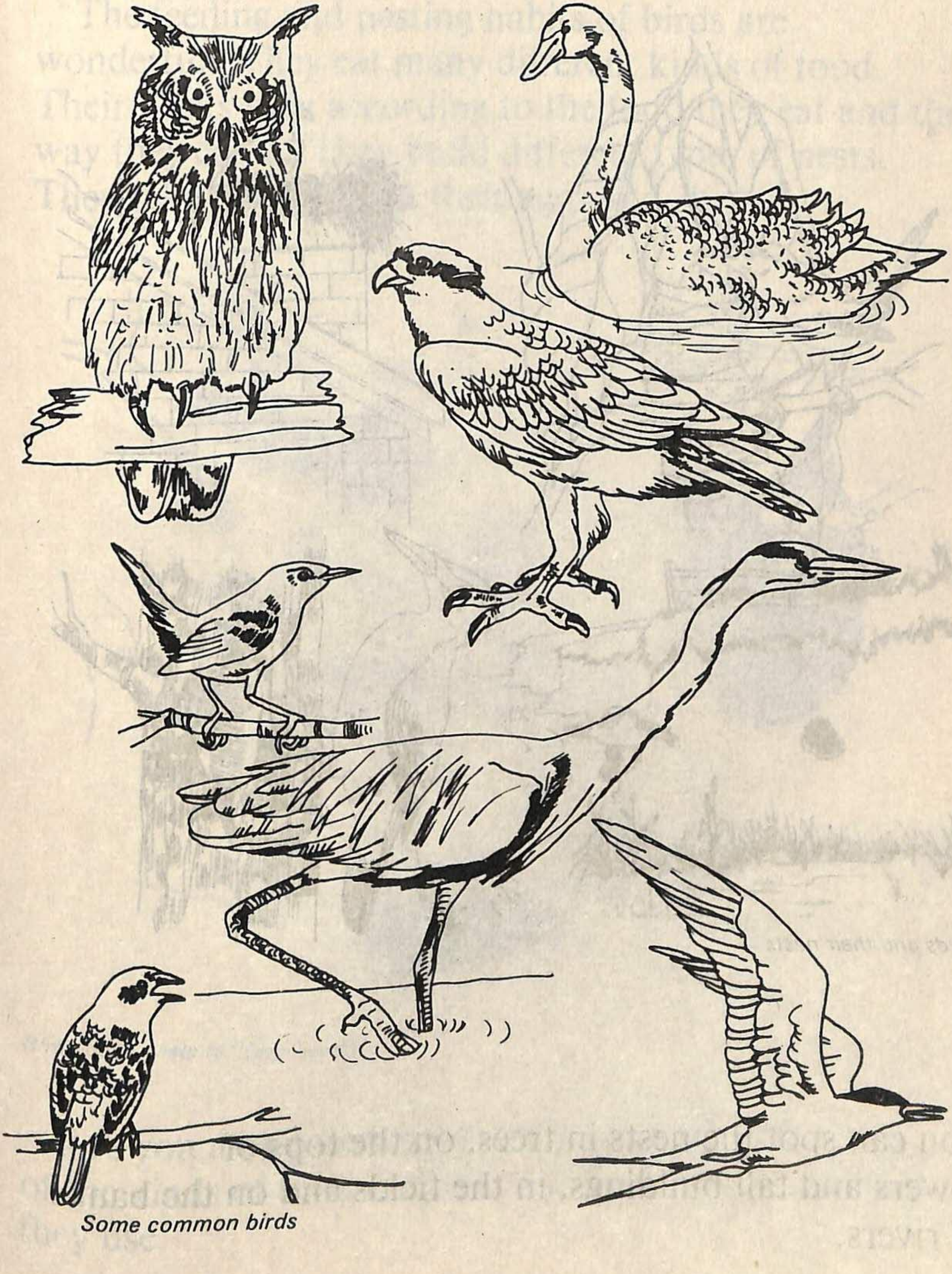
You can easily make out the call of a crow from that of a house-sparrow.



A crow

A sparrow

If you get used to calls of different birds, then you can tell the bird from its call without even seeing it.

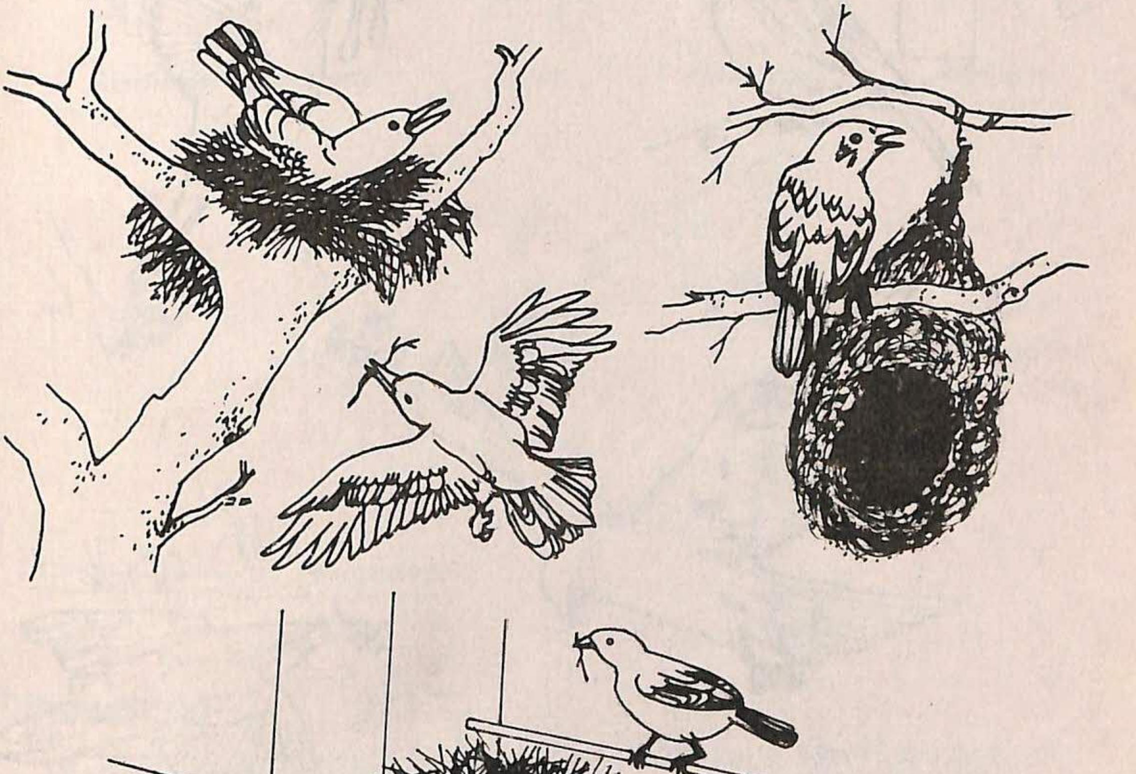


Some common birds

Birds and their nests

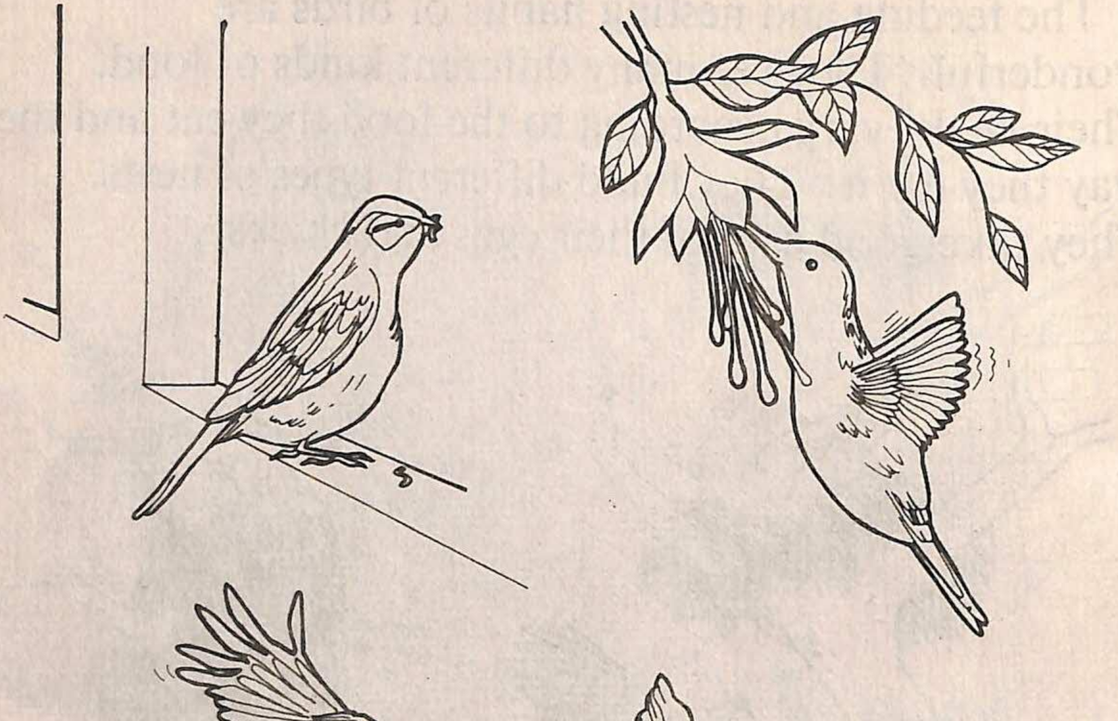
You can spot the nests in trees, on the tops of towers and tall buildings, in the fields and on the banks of rivers.

The feeding and nesting habits of birds are wonderful. They eat many different kinds of food. Their beaks vary according to the food they eat and the way they eat it. They build different types of nests. They take good care of their eggs and chicks.



Birds build nests for their chicks.

Are you a bird-watcher? Then you can make a list of the kinds of food they eat and the nesting materials they use.



Some of the things birds eat.

Look at the pictures on these pages and see what the birds eat and what materials they use for building their nests.

These are the materials birds use for making warm, cosy beds for their babies.

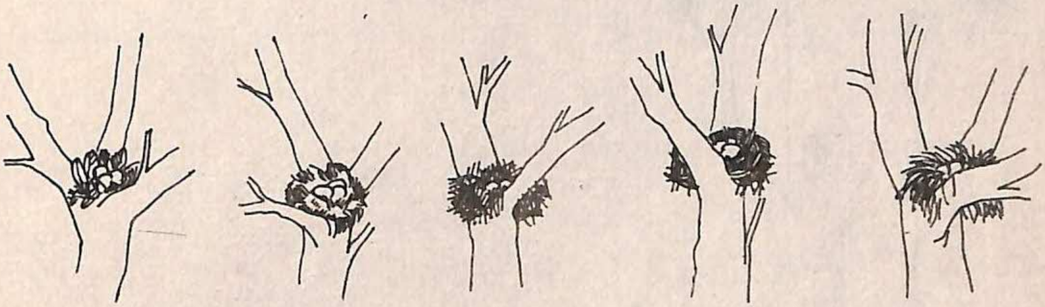
Feathers

Cotton

Twigs

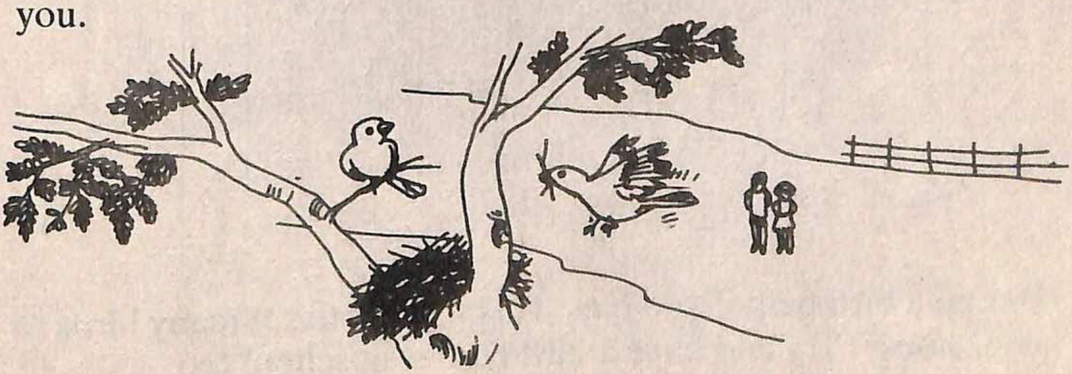
Coconut husk

String



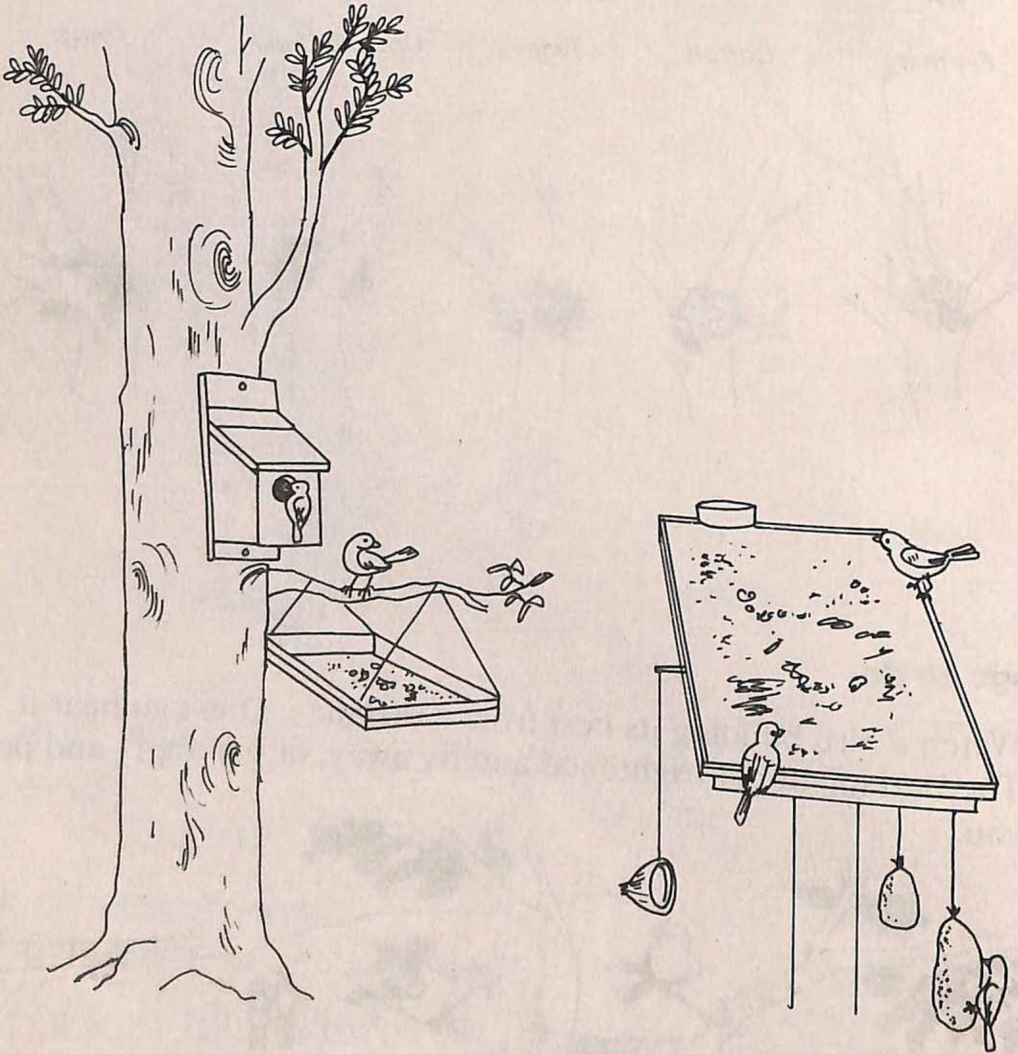
Things to do

1. Watch a bird building its nest from a distance. Don't go near it. The bird might get frightened and fly away, or get angry and peck you.



2. IN YOUR SCIENCE NOTEBOOK
   a. List the materials a bird collects for nest-building.
   b. Draw a bird with its nest and eggs. Colour the drawing.

3. Put a food tray in a quiet corner of your house. Keep some food-grains everyday in it. Watch how many kinds of birds come there to eat them. Do not forget to keep a bowl of water for the birds to drink.



4. Put up a bird-bath if you can. This would attract many birds to your house. Try and have a bird-corner in school too.

Oral exercises

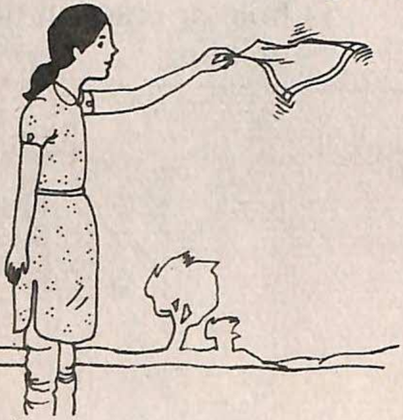
1. Match the bird with its food and nesting place:

Bird	Food	Nesting place
a. sparrow	grasshopper	on top of a tree
b. mynah	fleshy fruits	on ceilings in a house
c. parrot	worms	a tunnel on the bank of a river
d. kingfisher	young birds and animals	hole in a tree
e. eagle	fish	hole or crack in the of a building

11. Fun with Air

There is air around you wherever you go. You cannot see it, but you can feel it.

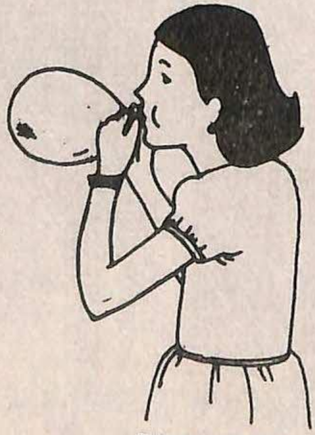
You can do simple things to show that air is around you. Try this – it is great fun!



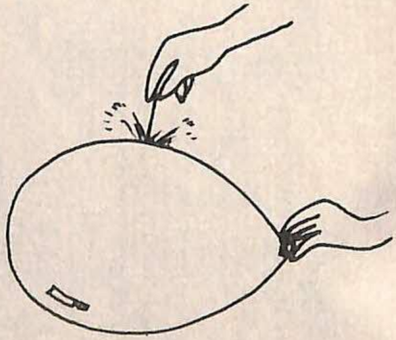
Wave a handkerchief.

1. Wave a handkerchief through the air. You can feel air moving around you.

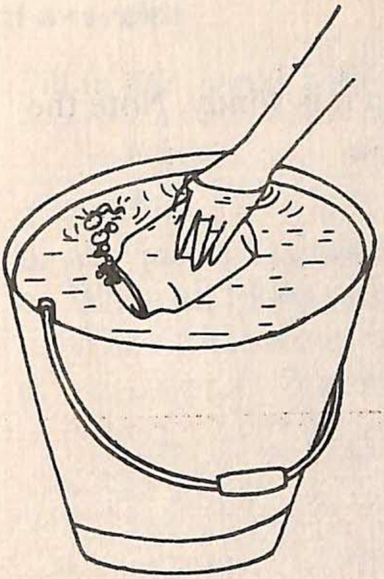
2. Blow air into a balloon. It swells. Pinch the opening tight and prick it with a pin. Bang! Air comes out with force.



Blow a balloon.



Prick it with a pin.

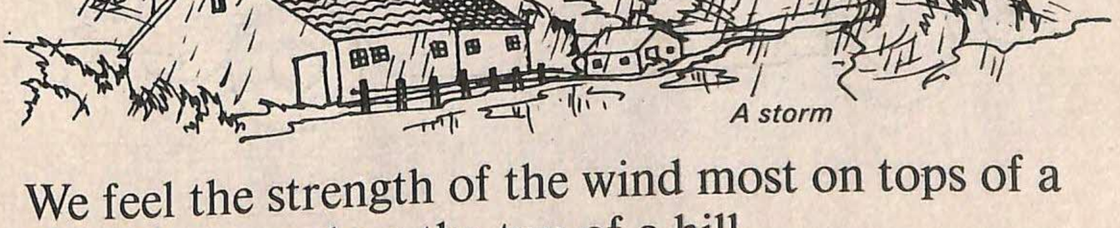


Place a bottle in water.

3. Place an empty bottle upside down in a bowl of water. Tilt the bottle slightly. You can see the air bubbles escaping and water taking its place. Now you know that the bottle was not really empty. It was filled with air which we could not see.

What do you understand from this?

This shows that air fills space. Sometimes air is quite still. At times air blows gently. We call it a breeze. When air moves with some force, we call it wind. When wind blows at great speed, we call it a storm.

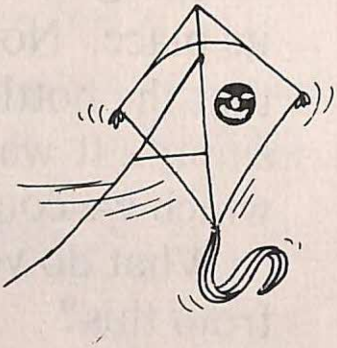


A storm

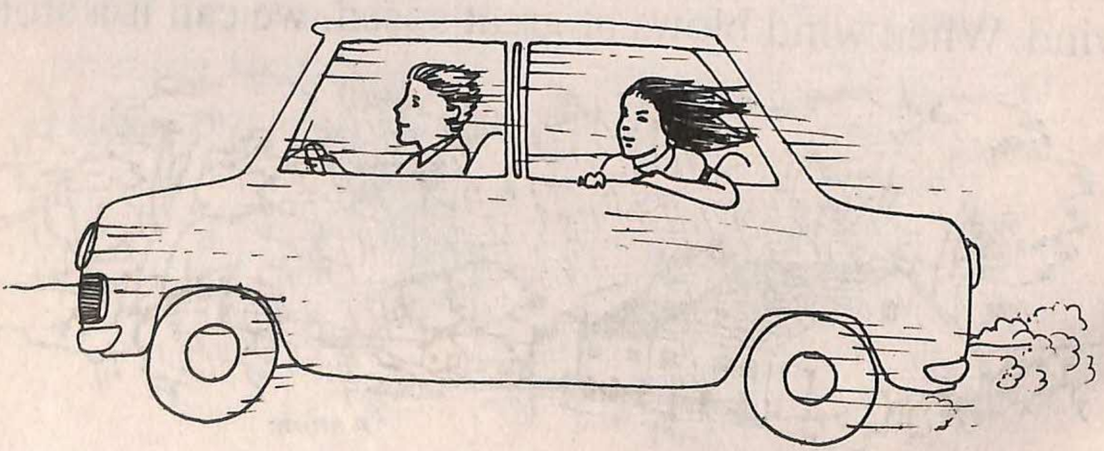
We feel the strength of the wind most on tops of a tall buildings and on the top of a hill.

Things to do

1. Fly a kite when the air is still. Fly it when it is windy. Note the difference.



2. When you travel fast in a car or a train, notice how your hair blows in the wind.



Oral exercise

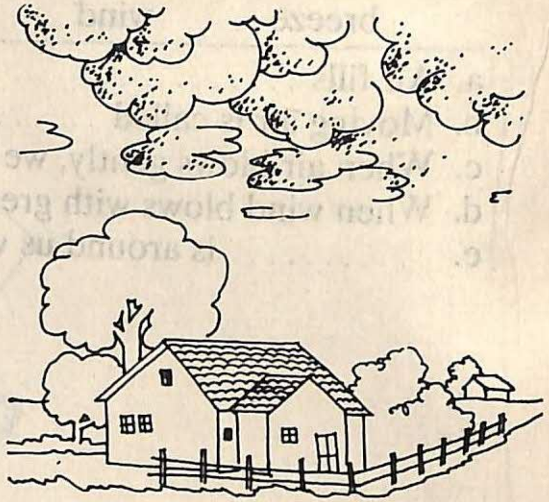
1. Fill in the blanks with the words given in the box:

breeze wind air storm space

a. Air fills . . . .
b. Moving air is called . . . .
c. When air blows gently, we call it a . . . .
d. When wind blows with great speed, we call it a . . . .
e. . . . . is around us wherever we go.

12. The Story of Raindrops

After a hot summer,
how happy rain makes us!
Where does it come from?
Dark clouds cool suddenly
and let the raindrops fall
down.



Dark clouds cool

When many droplets of water fall on the ground from these clouds, we say it rains. Rain water fills ponds and pools.

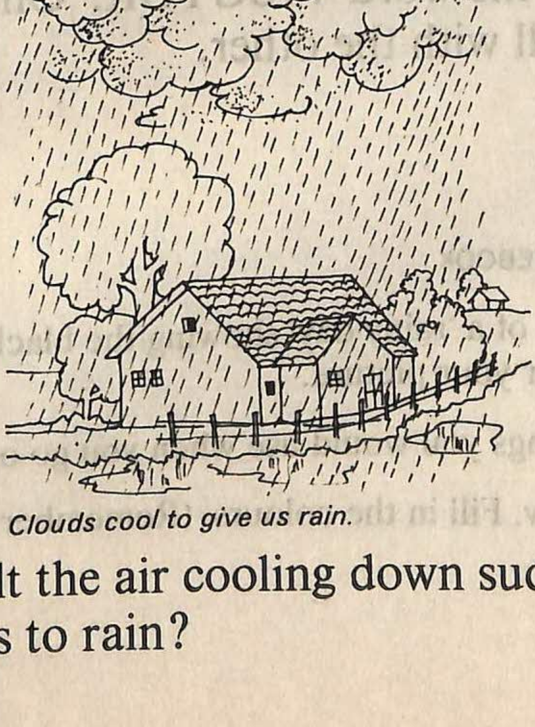
Rain water fills ponds

How do clouds collect water? To understand this, do as follows:

Take some water in a flat bowl. Keep it open in the sun for some time.
What happens to water in the bowl? Where does it go?
In the same way, what happens to rain water that is in ponds and pools?

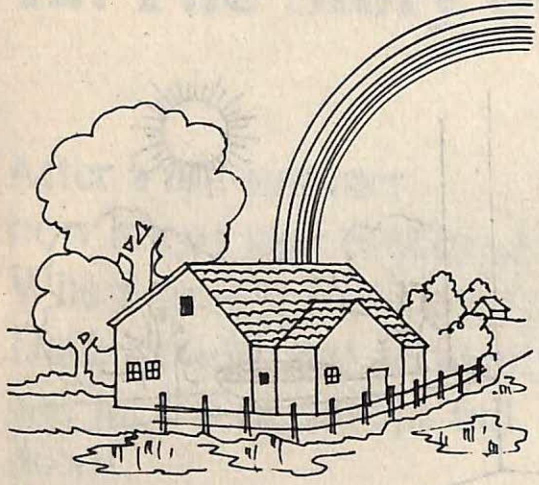
Place a dish of water in the Sun

The heat of the sun makes water go off, or evaporate, as water vapour. Water vapour gathers to form clouds. Once again the clouds cool down to give us rain.



Clouds cool to give us rain.

Have you felt the air cooling down suddenly, just before it begins to rain?



A rainbow in the sky

Then soon after it stops raining, have you seen a huge, colourful bow in the sky? It is always opposite the sun. It is called the rainbow.

What colours do you see in the rainbow?

The rainbow colours are, in the order in which they appear, violet, indigo (reddish blue), blue, green, yellow, orange and red. It is easy to remember this if you remember the word VIBGYOR. One colour blends very well with the other.

Things to do

IN YOUR SCIENCE NOTEBOOK

1. Draw a picture of a 'rainy day' showing the black clouds and the rain fall. Colour your picture.
2. Draw three things you would use when you go out on a rainy day.
3. Draw a rainbow. Fill in the colours. (Remember VIBGYOR?).

Oral exercises

1. Fill in the blanks with the words given in the box below:

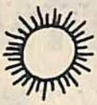
water, dark clouds, cool wind, water vapour, pools and ponds

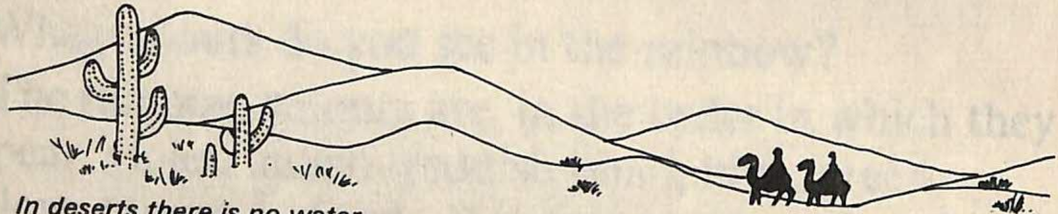
a. These gather to form clouds ....
b. These clouds produce rain ....
c. These are filled with rain water .... and ....
d. This evaporates from ponds and pools ....
e. This blows before it begins to rain ....

2. Name the colours of the rainbow in their proper order.

13. The Uses of Water

Can you live without water? How would you feel if you had no water to drink? We need water for life.





In deserts there is no water.

We need water to drink, or we would die. In deserts, where there is no water, people and animals can't live.

We need water for cooking.

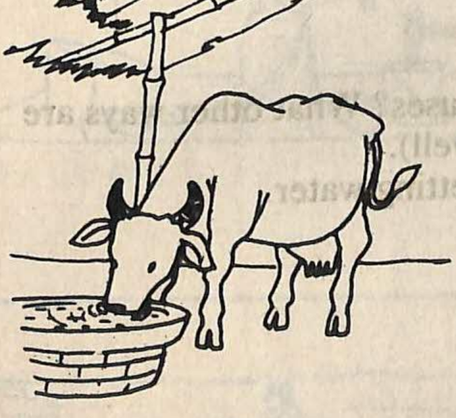
Water for cooking

We need water for bathing.

Water for bathing

We need water for cleaning in our homes.

Water for washing



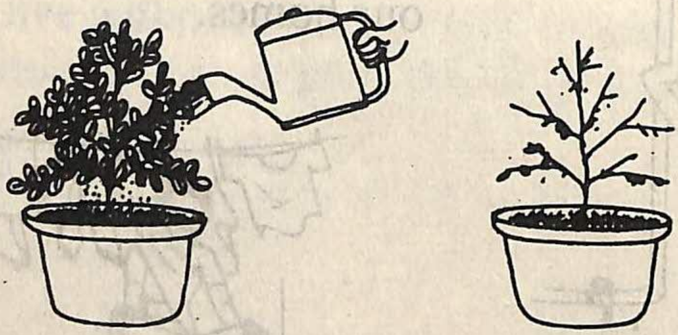
Animals need water too.

Water for cleaning

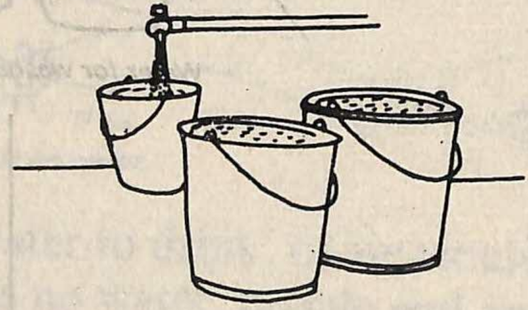
Animals, birds and plants need water

Things to do

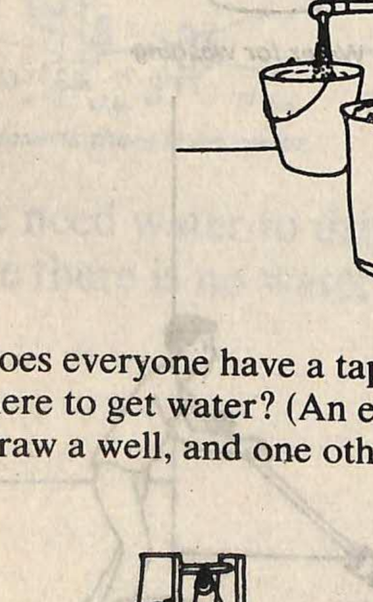
1. Keep two plants. Water one everyday. Don't water the other. What do you see? What happens to the pot you water? What happens to the one you don't?



2. How many buckets of water do you think you use in your house everyday? Ask an adult to help you find out.



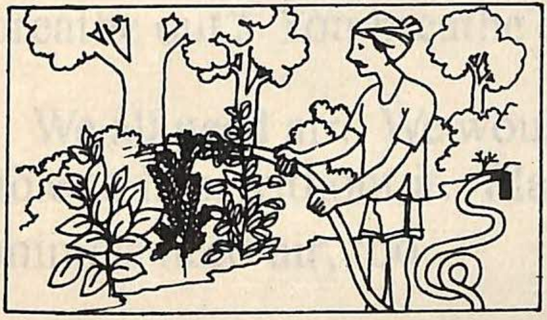
3. Does everyone have a tap in their houses? What other ways are there to get water? (An example: a well).
Draw a well, and one other way of getting water.

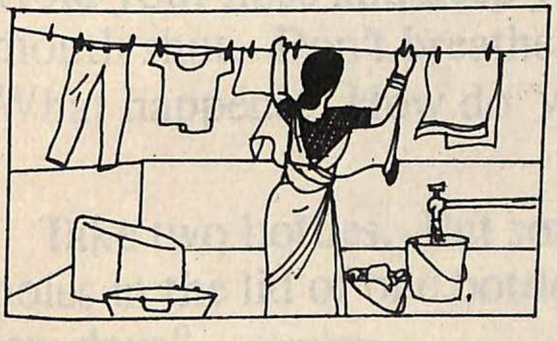


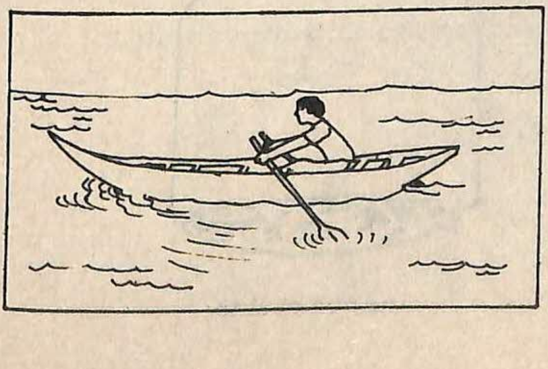
Oral Exercise

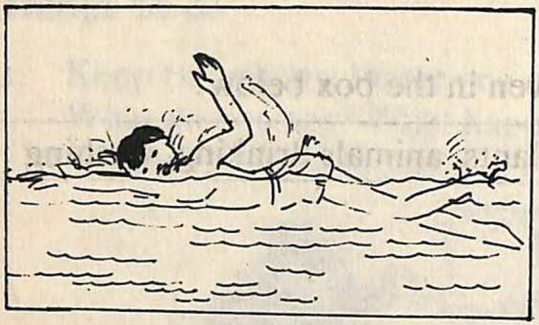
1. Fit the picture with the action given in the box below:

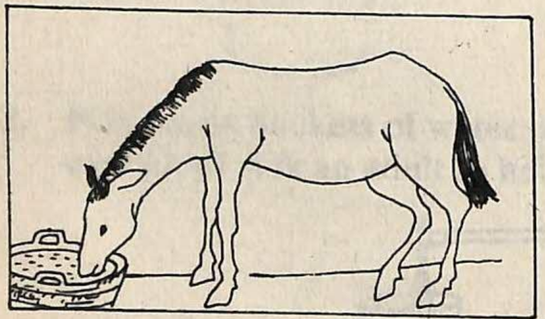
boating, swimming, watering plants, animals drinking, washing











14. Air is Necessary for Life

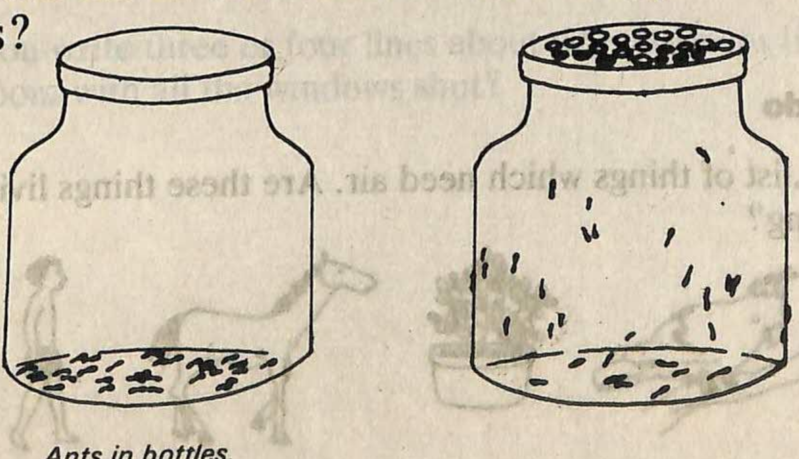
Do you know there is one thing you do without thinking about it? That's breathing! Watch yourself for a minute. Do you see how you breathe in and breathe out? You breathe even in sleep.

We all need air. We would not be able to live without it. Plants and animals need air, too.

Try this for yourself.
Hold your nose and keep your mouth shut. Don't breathe.
What happens? How do you feel?

Hold your nose

Take two bottles. Put some ants in both. Make holes in the lid of one bottle. What happens after a few days?



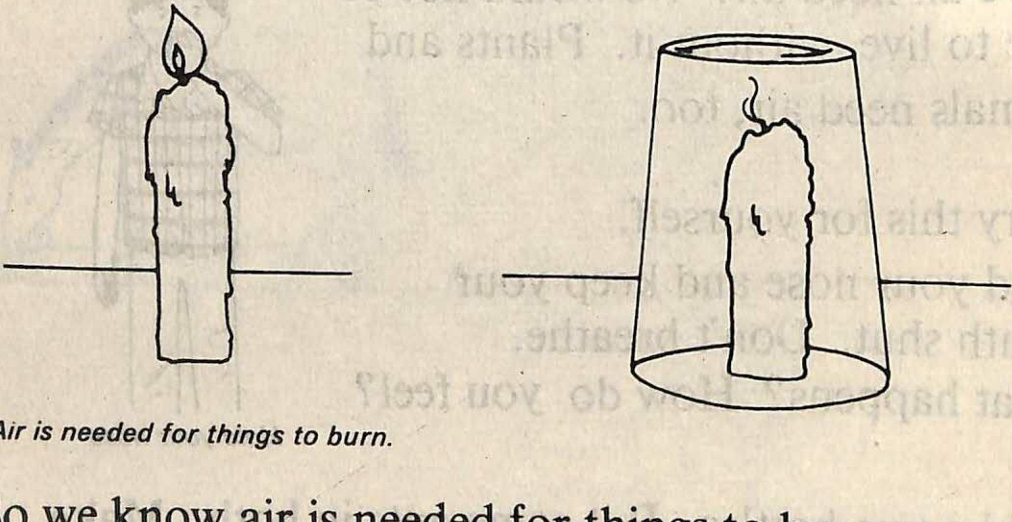
Ants in bottles.

Write down what you find here:

Bottle 1

Bottle 2

We also need air for burning. Get an adult to help you do this. Light two candles. Place a glass on one of the candles. The candle goes out.

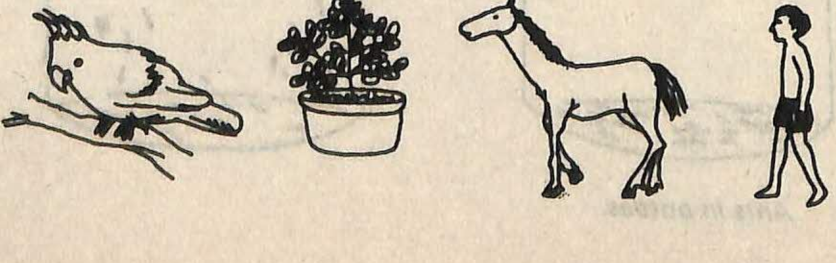


Air is needed for things to burn.

So we know air is needed for things to burn.

Things to do

1. Make a list of things which need air. Are these things living or non-living?



2. Take a plant in a pot. Put it in a dark cupboard. After a few days, why it is dead? What are the things a plant needs in order to live?

Oral Exercises

1. Fill in the blanks with the words in the box :

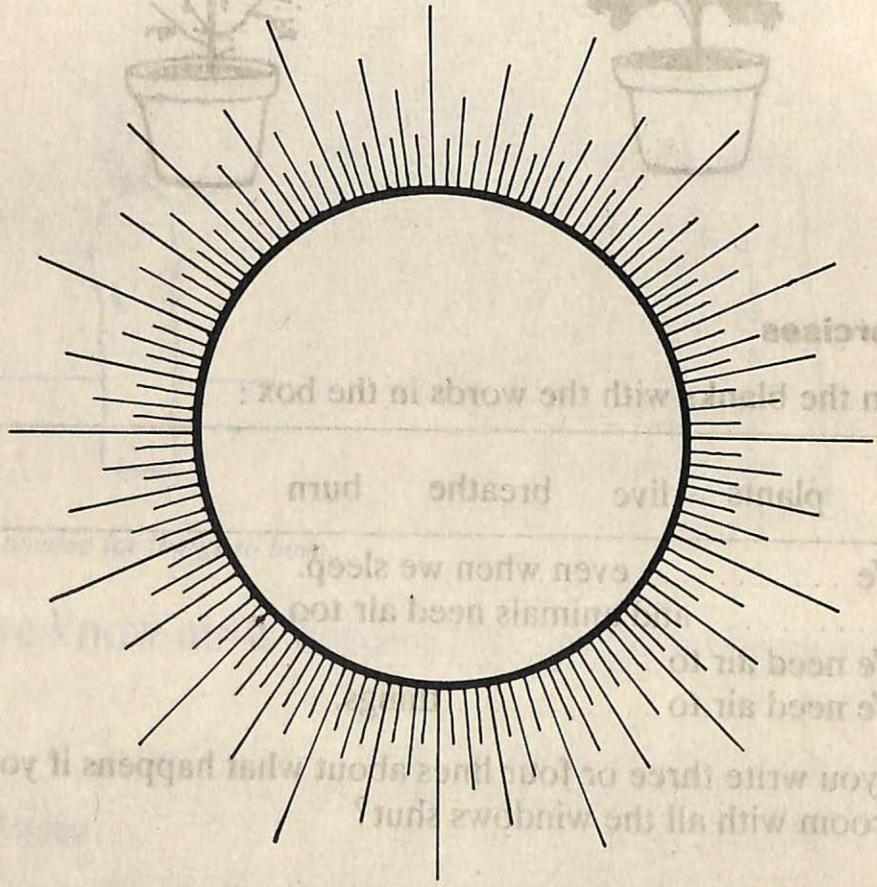
plants live breathe burn

a. We .... even when we sleep.
b. .... and animals need air too.
c. We need air to ....
d. We need air to .... things.

2. Can you write three or four lines about what happens if you sleep in a room with all the windows shut?

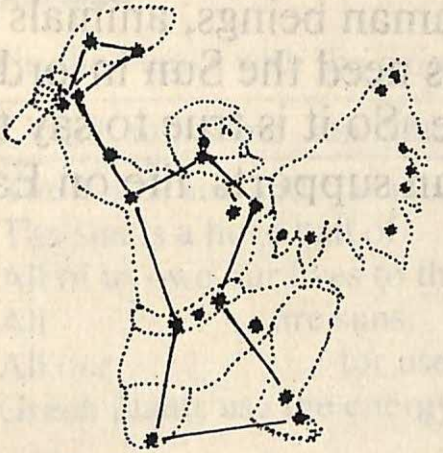
15. The Sun and the Stars

The Sun is a huge ball of fire. It is so hot that it gives out light. The Sun shines on the earth and makes it day.



The Sun is a huge ball of fire

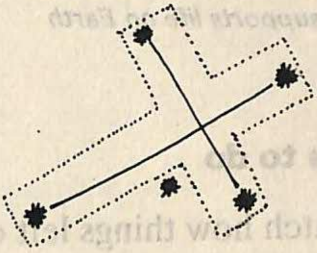
The Sun is a star. Although it is big, it is not the biggest star. It looks bigger than other stars because it is closer to us. All stars are suns. The stars look smaller because they are much further away.



One star pattern .

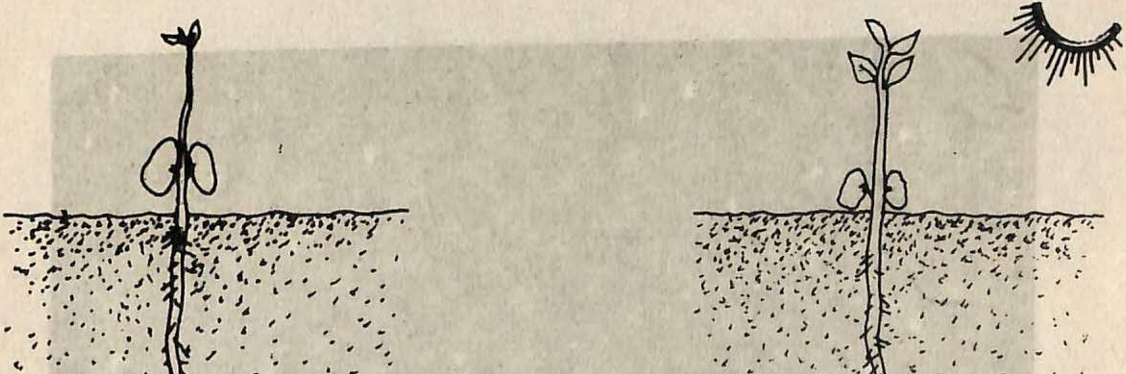
Do you think that the stars twinkle in the sky only in the night? Even during the day, there are stars in the sky. We get so much light from the Sun, our nearest star, during the day that we cannot see the stars which are very far away.

Stars make beautiful patterns in the sky. We see stars clearly on a cloudless night. We cannot see them if the sky is cloudy.



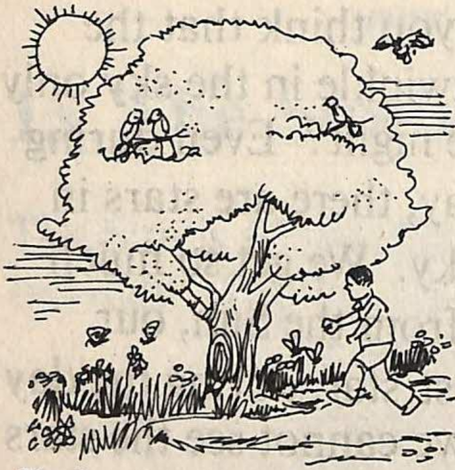
Another star pattern

If the Sun did not send light and warmth to the Earth, nothing could live on it. All of us owe our lives to the Sun. That is why some people worship the Sun.



Green plants need the sun .

The Sun is a great source of energy. Green plants use the energy in the sunlight to make food and grow.



The Sun supports life on Earth

Human beings, animals and insects need the Sun in order to live. So it is true to say that the Sun supports life on Earth.

Things to do

1. Watch how things left out in the sun get hot.
2. Keep a green plant in the darkness. Keep another outside where it can get sunlight. Which of them grows well? Why?
3. Look at the sky in the night. Look at the twinkling stars. Can you make out any pattern made by a group of stars?

Oral Exercise

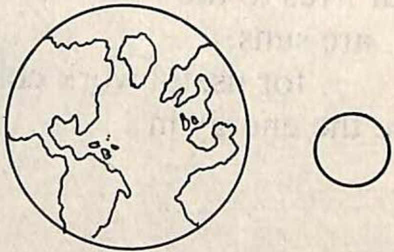
1. Fill in the blanks with the words given in the box below:

fire stars sun same sunlight energy

a. The words sun and star mean the ....
b. The sun is a huge ball of ....
c. All of us owe our lives to the ....
d. All .... are suns.
e. All our .... for useful work comes from the sun.
f. Green plants use the energy in .... to make food.

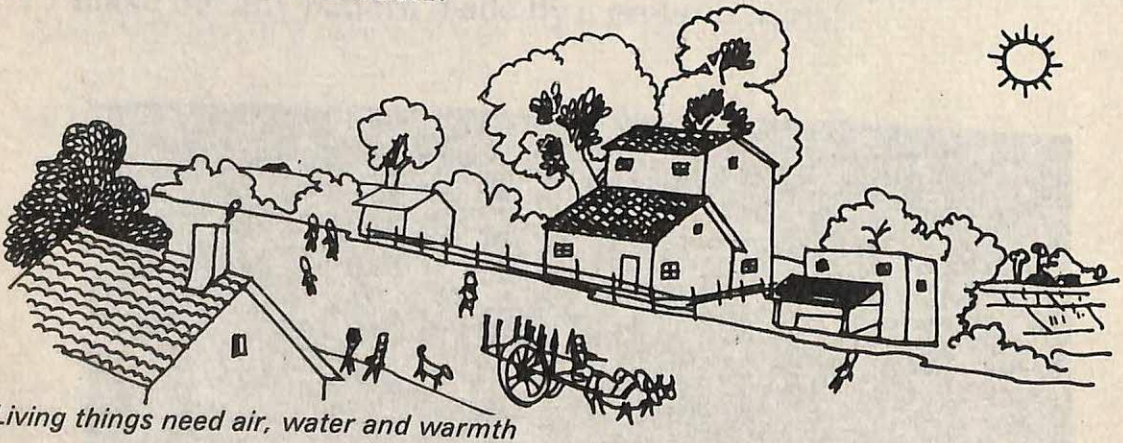
16. The Earth and the Moon

The Earth and the Moon are round like the Sun is. The Moon is the Earth's nearest neighbour.



The Moon is the Earth's nearest neighbour

We live on Earth. We find many living things on Earth. Plants, animals and human beings are living things. Living things need air, water and warmth. We get all these on Earth.

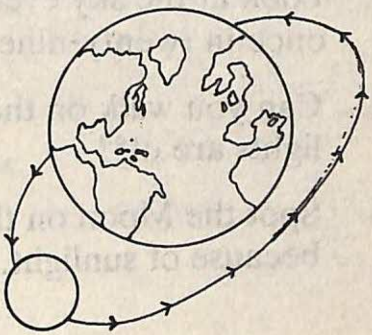


Living things need air, water and warmth

There is no water or air on the Moon. So there is no life. But it has many steep mountains just as we have on Earth.

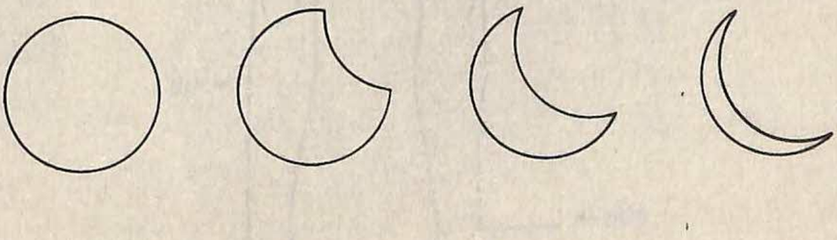
The Earth and the Moon do not have light of their own. The Sun shines on both of them, giving them light. Moonlight is not warm because it reflects or sends away, the light which it gets from the Sun.

The Moon has day and night just as the Earth has. The Moon always shows the same side to the earth. So we see only one side of it. The only people who have seen the other side are the astronauts.



The Moon shows the same side always.

As we watch the Moon in the sky night after night, it seems to change its shape. We call this the phases of the Moon. Some nights, it is a narrow crescent — a new moon. A few nights later, it is a half-moon. After about a week, it is big and round — the full moon. Then it shrinks until it cannot be seen at all for a night or two.



The phases of the Moon

The sky is bright on a full moon night. It is very dark on the night of a new moon.

Things to do

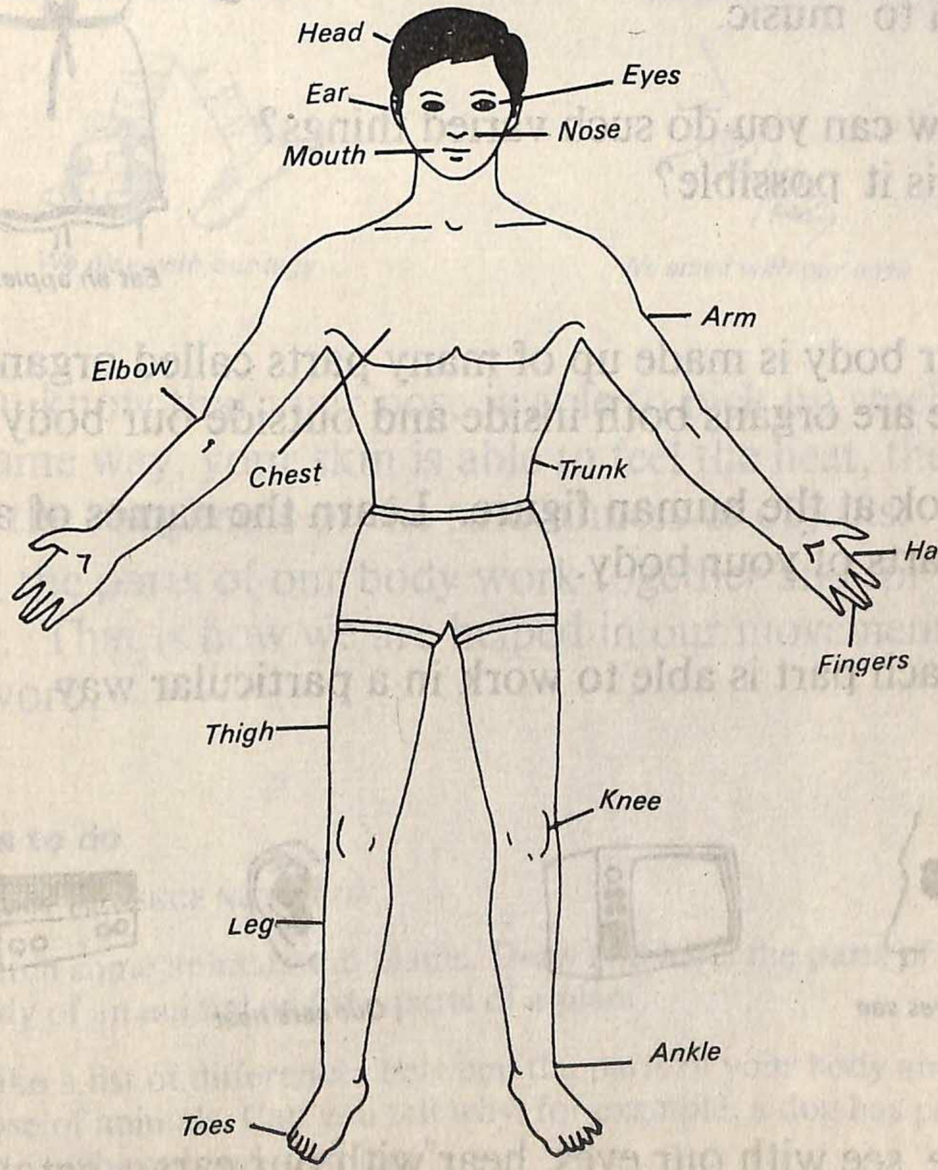
1. Look at the sky every night. You will see that the moon is full once in twenty-nine days.
2. Can you walk on the road on a new moon day, when the road lights are off?
3. Spot the Moon on the sky during the day. It is not so bright, because of sunlight.

Oral Exercise

1. Read the following sentences and say whether they are true or false:
   - a. There is no life on the Moon.
   - b. The Earth and the Moon do not have light of their own.
   - c. We can see all the sides of the Moon.
   - d. The sky is very dark on a full moon night.
   - e. The Moon seems to change its shape night after night.
   - f. Moonlight is very warm.

17. Parts of Our Body

Stand in front of a mirror. Look at yourself. See all the parts of your body in the mirror.



Parts of the body

Move your arms and legs. Nod your head. Look around yourself, turning your neck. Speak to someone. Eat something. Drop a pencil on the ground, bend and pick it up. Walk and run. Listen to music.

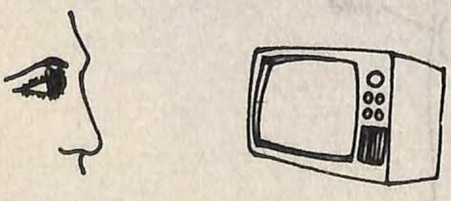
How can you do such varied things? How is it possible?

Eat an apple.

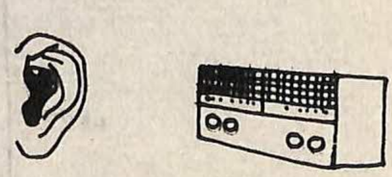
Our body is made up of many parts called organs. There are organs both inside and outside our body.

Look at the human figure. Learn the names of all the parts of your body.

Each part is able to work in a particular way.

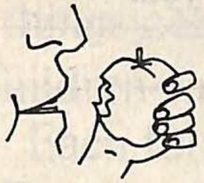


Our eyes see

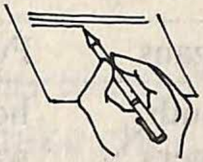


Our ears hear

We see with our eyes, hear with our ears, eat with our mouth, work with our arms and hands and walk and run with our legs and feet.



We eat with our mouth



We write with our hands

We play with our legs

We smell with our nose

You know that your nose is able to pick up smell. In the same way, your skin is able to feel the heat, the cold, the roughness or the smoothness of objects.

All the parts of our body work together and for each other. That is how we are helped in our movements and work.

Things to do

IN YOUR SCIENCE NOTEBOOK

1. Watch some animals and plants. Draw and label the parts of the body of an animal and the parts of a plant.
2. Make a list of differences between the parts of your body and those of animals. Can you tell why, for example, a dog has paws and you have hands and legs?

Oral Exercise

1. Every part of your body has many functions. One function for each part has been given below. Can you match them? They are all mixed up. The first one has been done for you.

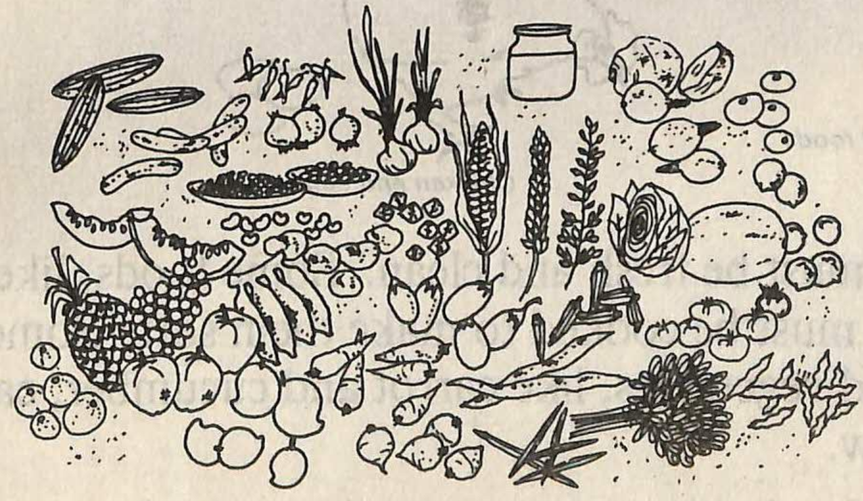
Organs	Functions
a. mouth	holding a pencil.
b. fingers	walking, running.
c. ear	smell food and flowers.
d. legs	eating, speaking.
e. toes	seeing.
f. nose	grinding food.
g. eyes	hearing.
h. teeth	standing properly.

18. Food and Growth

Living things need food to grow.

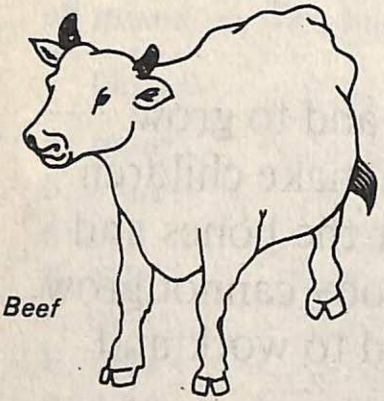
All children eat food to keep well and to grow strong. Each food has something to make children grow. For example, milk is good for the bones and teeth. Without the right food, the body cannot grow. People become weak and find it hard to work and play.

We get food from plants and animals. Vegetables, fruits, nuts, grains and pulses are plant foods.

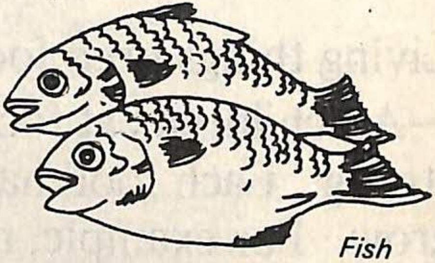


Some plant foods

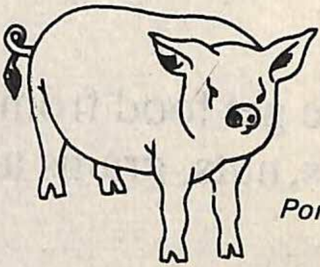
Milk, cheese, butter, eggs and meat are some examples of animal foods.



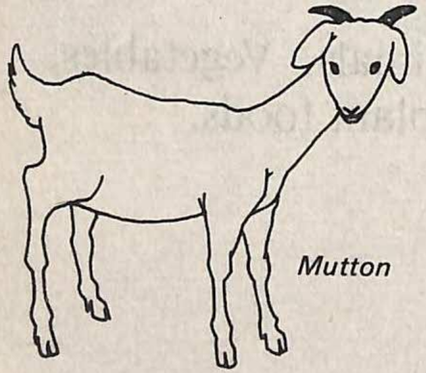
Beef



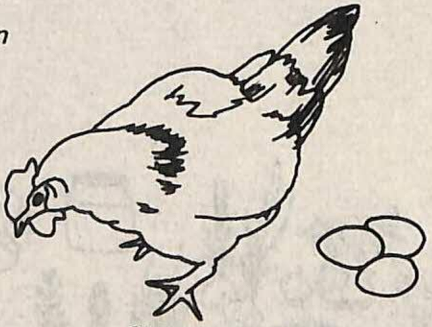
Fish



Pork



Mutton



Chicken and eggs

Some animal foods

Food must be fresh and clean. Some foods, like rice and dal, must be cooked to make them soft. Some fruits and vegetables, like carrot and cucumber, can be eaten raw.

Good food gives us energy to do work. It helps young people to grow bigger and stronger.

Things to do

FOR YOUR CLASS DISPLAY BOARD

1. Look at the pictures of food plants and food animals in the lesson. Collect pictures of some more food plants and food animals which are not there.

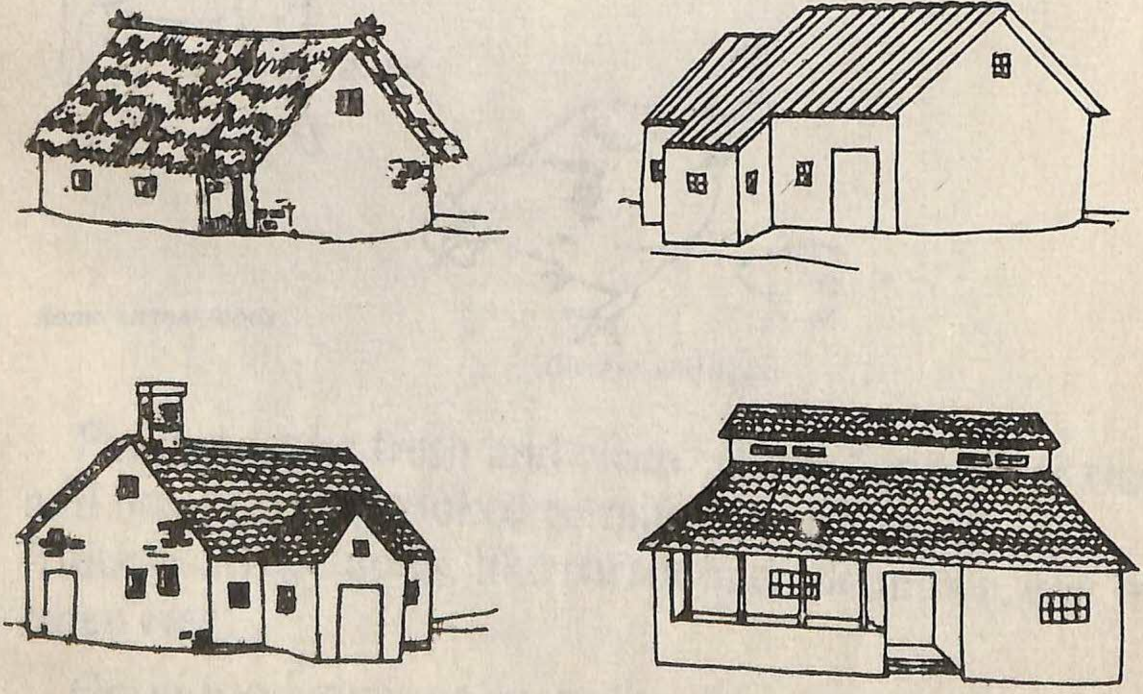
Oral Exercises

1. Name some fruits and vegetables you like best.
2. What did you eat for lunch today?

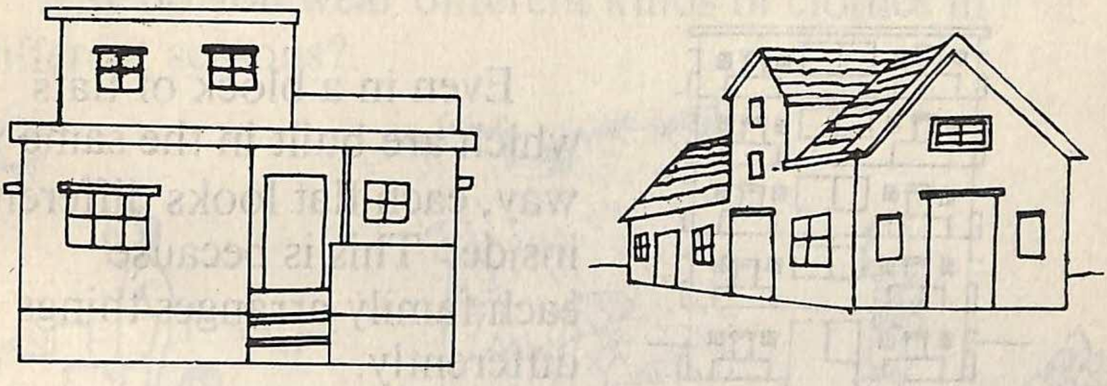
UNIT VI *HOUSING AND CLOTHING*

19. Our Homes and our Clothes

You have seen houses of different types. People need a place where they can feel safe and live with others (their family). People need shelter from the heat of the sun. They must keep dry on rainy days. They must keep warm in cold weather. People need some place where they can sleep, eat and keep their things. So people live in houses.

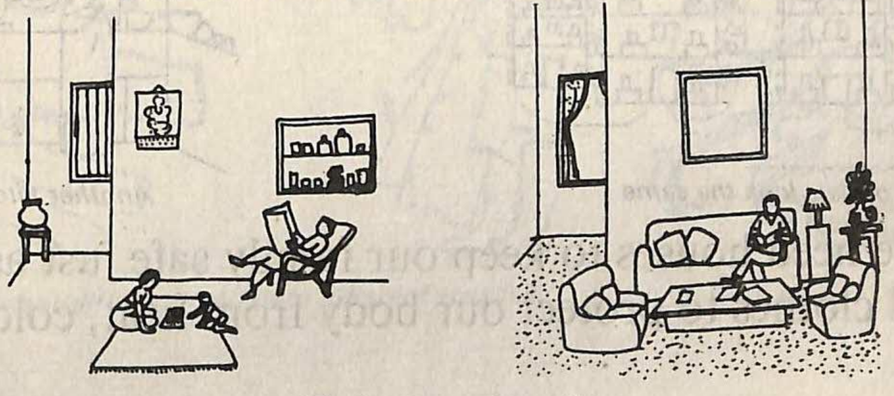


Houses some of us live in

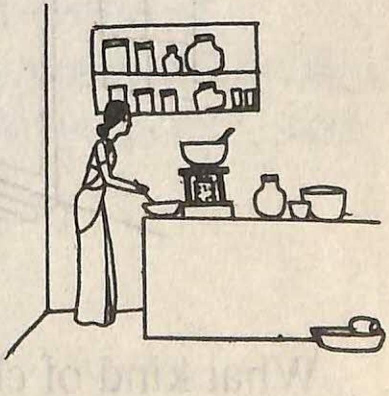


Two kinds of houses

Even though houses are built differently, they have some things that are always the same. Think of your own house. Some houses also have chimneys.

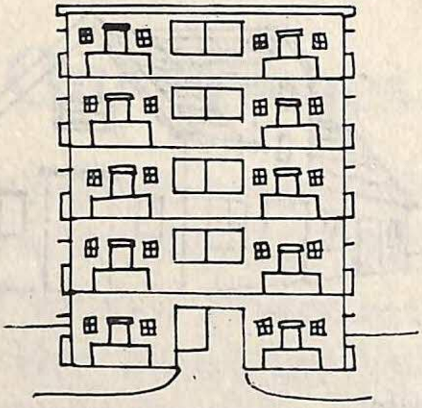


The interiors of two flats

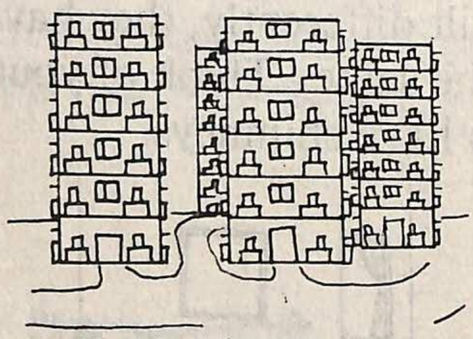


Inside the house there are floors, ceilings, doors, shelves, etc. There is a kitchen, a living-room and a bedroom. Each house has outlets for waste water to drain away.

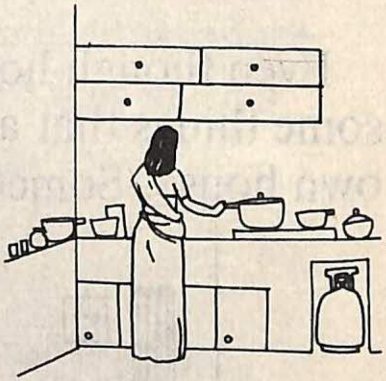
A kitchen



Even in a block of flats which are built in the same way, each flat looks different inside. This is because each family arranges things differently.



Blocks of flats look the same



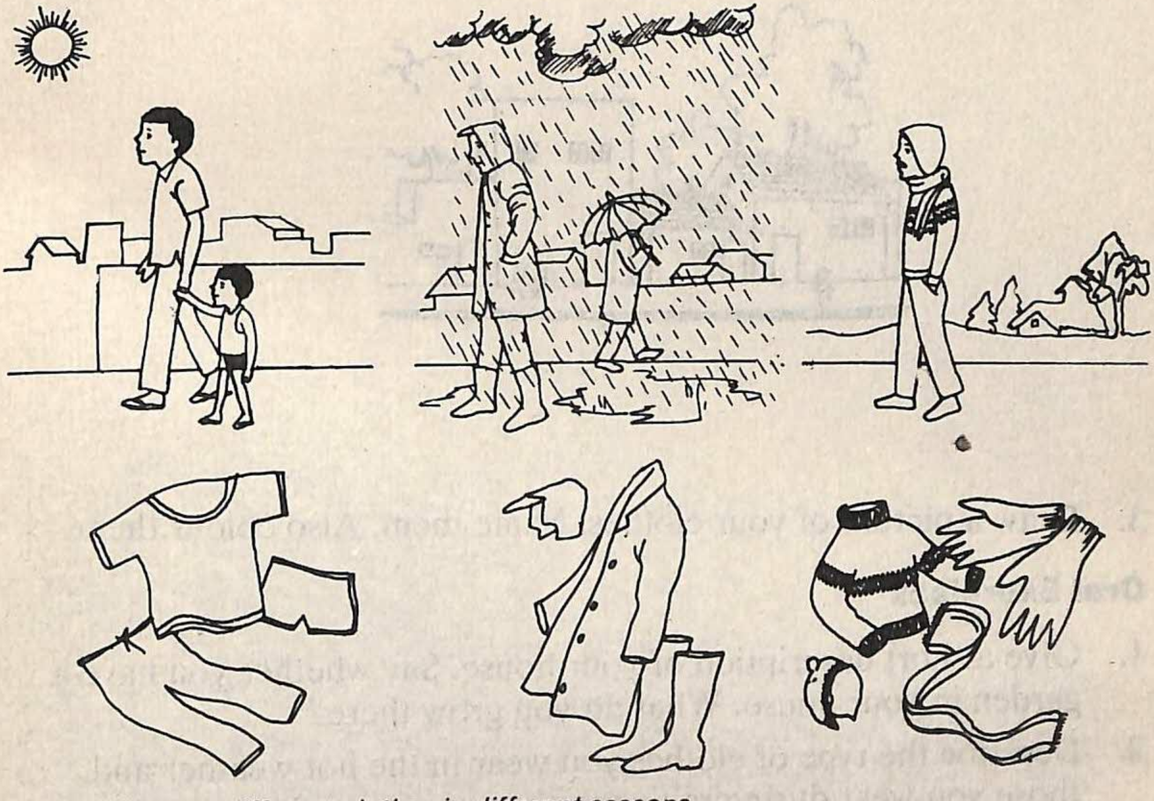
Another kitchen

We need houses to keep our family safe just as we need clothes to protect our body from heat, cold and rain.

A home

What kind of clothes do people wear? Do they wear the same type of clothes always?

Why do you wear different kinds of clothes in different seasons?



We wear different clothes in different seasons

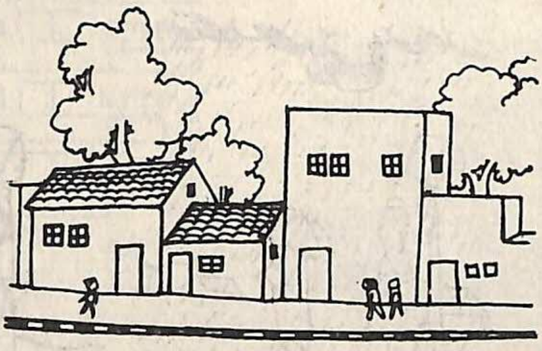
You wear cotton clothes in the hot weather. Perhaps you choose to wear woollen clothes in very cold weather. You wear a raincoat to keep yourself dry on a rainy day. So you know that you wear clothes suitable to every season.

Things to do

IN YOUR SCIENCE NOTEBOOK

1. Draw your house and colour it.

2. Draw your street and mark your house in it. Name the street.



3. Draw a picture of your clothes. Name them. Also colour them.

Oral Exercises

1. Give a short description of your house. Say whether you have a garden in your house. What do you grow there?
2. Describe the type of clothes you wear in the hot weather and those you wear during rainy weather.
3. What would happen if you wore a raincoat in the summer?